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COMPUTERWORLD

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AT&T rolls out low-end PBX with ties to Systems 75 and 85. **Page 15.**

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Honeywell and NEC team up to sell Japanese supercomputers in U.S. **Page 6.**

■

Never one to ignore a market established by others, IBM last week announced the creation of the Publishing Systems Business Unit. The group will market and develop computer-aided publishing systems, "drawing largely on products . . . manufactured and developed by IBM," an IBM spokesman said. The systems will utilize a broad range of IBM products, including mainframes.

■

The almost-certain repeal of the investment tax credit [CW, June 30] has already caused one large corporate user to opt for purchase, rather than lease, of an IBM 3090 currently being installed. Merrill Lynch, Pierce, Fenner & Smith decided

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DG axes 500, slump persists

Sees no improvement in short-term outlook

By Clinton Wilder

WESTBORO, Mass. — In a dramatic reminder that the computer industry slump remains as stubborn as ever for some companies, Data General Corp. last week laid off 500 white-collar employees and predicted no short-term improvement in its business outlook.

DG, which cut 400 manufacturing jobs by closing two plants last month [CW, June 16], said last week's layoffs would affect clerical, administrative and support workers in every area except sales, mar-

See **DG** page 6

Air carriers' fusion breeds MIS spin-off

By David A. Ludlum

HOUSTON — Preparing for a proposed merger with Eastern Airlines, Inc., Texas Air Corp. last week said it plans to form a subsidiary that will combine the internal and commercial computer operations of Eastern and three other airlines operated by Texas Air.

In an interview last week, the top executive of Texas Air's current information systems subsidiary said the company expects to reap economies of scale while making the Eastern reservations system big enough to compete effectively. The company operates Texas Air, Continental

See **AIRLINES'** page 8

Privacy threat seen by agency

By Mitch Betts

WASHINGTON, D.C. — Advances in technology are eroding the federal government's ability to ensure privacy of personal information stored in government computers, a congressional report charged last week. The assessment spurred calls for new legislation to prevent abuse of data collected by the government.

The U.S. Congress' Office of Technology Assessment, in a report released to Congress, claimed little or no direction is

See **PRIVACY** page 14

Links, LANs to rule at PC Expo

By Douglas Barney

NEW YORK — Microcomputer communications-oriented product announcements will dominate this week's PC Expo trade show and will include a combination of personal computer and mainframe software from Lotus Development Corp. that makes use of existing micro-to-mainframe links.

A number of local-area network and file server offerings will be announced by a variety of vendors, but the most anticipat-

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CW SPECIAL REPORT

Terminal bargains: Commodity market pushes prices down, functionality up

By Maura McEnaney

Terminals, like telephones, have become commonplace on workers' desks, sitting as a reminder of work yet undone. For the more than 40 terminal vendors vying for position in a shrinking market, competition is tougher than ever before.

In a business in which shipments increased only 7.2% in the U.S. last year, compared with an 18% growth rate the year before, terminal vendors are engaged in fierce price wars. Between 1983 and 1986, the average price of an ASCII terminal fell 33%, from $995 to $665. By 1987, the average price tag on these terminals — which use the standard ASCII code for asynchronous communications — is expected to slip to $589, according to one market survey.

The competition has been given a new dimension as the price wars transform terminals into a commodity and vendors pack their products with the most functionality at the lowest prices. Today, most ASCII terminals offer as standard features such items as programmable keys, multiple emulations, 132-column displays and color screens.

For corporate computer managers charged with making volume purchases of ASCII terminals, the current situation offers an excellent opportunity to buy quality products at bargain prices — and to weigh the probable staying power of the leading players in the field.

"It's hard to evaluate terminals on their performance because in many ways, they are all the same," says Ilene Goldman,

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NEWSPAPER

Service lets multinationals access overseas applications

IBM to link U.S. to foreign data centers

By Elisabeth Horwitt

RYE BROOK, N.Y. — Offering multinational corporations the ability to share information and applications with overseas sites, IBM announced Intercontinental Information Services last week. Users of IBM's U.S.-based Information Network will now be able to access data and applications residing in IBM's foreign-based data centers, a company spokesman said.

The first phase of the two-phased introduction begins July 31 and provides a link from IBM Information Network to international services offered in 15 countries by IBM World Trade Europe/Middle East/Africa Corp. and IBM Japan. Information Network provides DP and networking services to U.S. businesses.

The intercontinental services will enable U.S.-based multinational companies to perform data collection, analysis and consolidation of marketing, accounting, sales or other types of data at an overseas IBM data center in Zoetermeer, Denmark, according to IBM market support administrator Robert Preisser. "There already is a community of IBM data center users in Europe; now U.S. users can share the same applications with European users, who are generally within the same company."

Batch processing

The international services, which have been available outside the U.S. since 1983, offer Application Systems, TSO and MVS batch processing at the Zoetermeer data center and batch processing at data centers in 15 countries, Preisser added. Application Systems is a "fourth-generation language" from IBM that has been available for more than a decade in Europe on a time-sharing basis and for two years as licensed software, according to IBM spokeswoman Ann Boland. Application Systems is used by tens of thousands of customers in Europe, Boland said.

Once the services are in place, authorized U.S. terminal users will be able to access them using the CCITT X.25 packet-switching protocol, IBM said.

"X.25 is the obvious choice," Preisser said. "A lot of European Postal Telegraph and Telephone authorities support it." IBM's networks are primarily Systems Network Architecture, but many user sites have implemented IBM's Network control program, Packet Switching Interface, on their network processors, which converts SNA to X.25, he added.

In Phase 2, which will begin on Oct. 31, IBM is scheduled to introduce a Professional Office System (Profs)-based connection between Information Network and its data center in Zoetermeer. "Users can log onto Profs' services on the Information Network, create a document and send it to an electronic mailbox in Zoetermeer," Preisser said. Zoetermeer acts as a network hub that routes documents between the IBM Information Network data centers in the U.S. and data centers in other European countries. Overseas recipients can usually pick up their mail two or three minutes after it is sent, according to Preisser.

IBM is allowed to offer remote data processing, but not electronic mail transmission services, in all overseas countries except Japan and the UK, Preisser said. As a result, documents cannot be delivered directly to user sites but instead reside in electronic mailboxes at the Zoetermeer facility.

Also introduced in Phase 2 will be bulk data transfer between Zoetermeer and the other IBM data centers. This application targets companies that want to cut back on the cost of sending documents overseas, such as shipping data, sales summaries, invoices, "anything that can be sent in batch mode," Boland said.

The services are "interesting, but not earthshaking," said Lee Doyle, senior analyst at Framingham, Mass.-based International Data Corp. "I see them as primarily a way for IBM to beef up profits from its Information Network, which is not a huge moneymaker."

"I can't think of any business reason to start using the Intercontinental Services, even though we're an international company," said Aetna Life & Casualty Co. assistant vice-president of telecommunications, John Donovan.

He added that Aetna uses the IBM Information Network for "low-level networking — it's a handy transmission facility. But we only need it as a conduit to our own computers. We don't need to time-share on IBM's." Aetna's international communications are "strictly direct-dial," according to Donovan. "The fact that IBM Information Network is going international is strictly ho-hum to us," he added.

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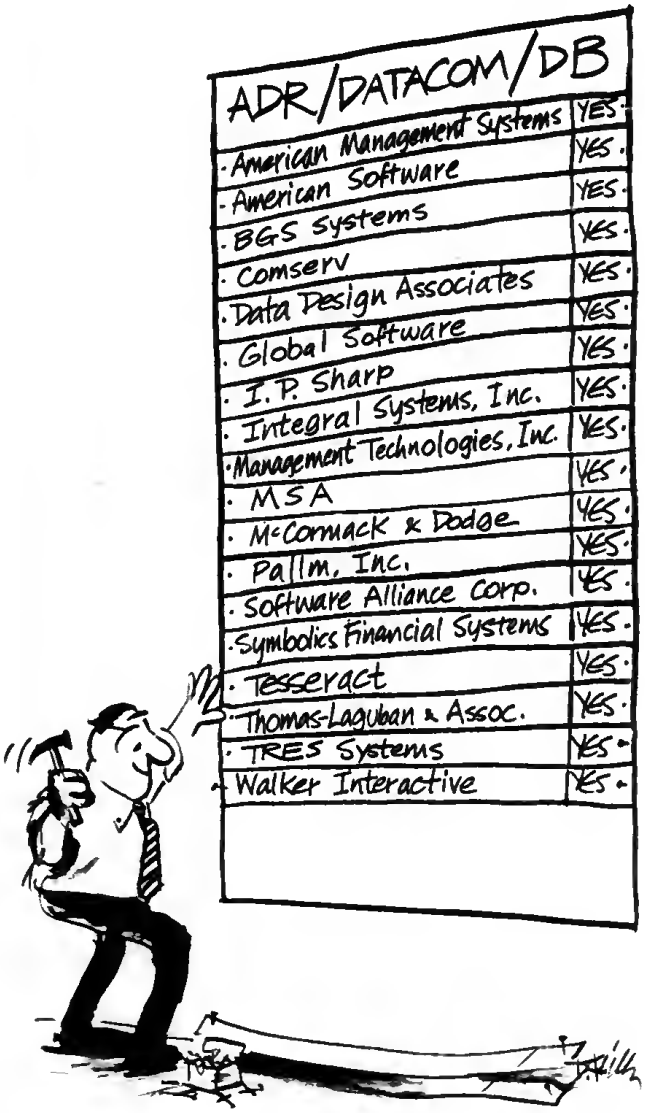

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Butterfly unit boosted with upgraded chips

BBN spins out group to market processors

By James Connolly

CAMBRIDGE, Mass. — Claiming a doubling of performance and expanded memory capacities, Bolt, Beranek & Newman, Inc. (BBN) last week enhanced its Butterfly parallel processing computer.

The company also announced that it has spun off its parallel processing operation into a wholly owned subsidiary known as BBN Advanced Computers, Inc.

Paul A. Castleman, former general manager of the parallel computing operation, was named president of the new company, which he said will use BBN's manufacturing facilities while trying to expand its market share in scientific and engineering high-performance computing.

He admitted that BBN has maintained a low profile with the Butterfly, which has an installed base of 63 systems. "That has been BBN's style. We want to make sure that we really have a product before we go public with it," Castleman said.

Enhancements announced last week include the replacement of the Motorola, Inc. 68000 microprocessor in the Butterfly with an optional Motorola 68020 and the addition of a Motorola 68881 floating-point coprocessor to the system.

BBN also announced the availability of an additional 3M bytes of shared memory for each of the maximum 256 processors, which previously had a memory capacity of 1M bytes, and the availability of Fortran 77 rather than just C. The system-wide shared memory capacity is now 1G bytes.

Castleman said customers can start with a basic configuration of four CPUs and can expand their system in single-processor increments to 256 processors, while gaining almost one million instructions per second in performance for each 68020 added. He said benchmark tests have shown the performance gain to be about 85% for some applications.

A four-CPU system costs about $40,000, and a typical 32-CPU system costs $375,000. The 3M-byte memory option costs $6,500 to $9,500.

"The new enhancements extend the Butterfly's power and versatility in a variety of applications," Castleman said. "One gigabyte of memory allows programmers to address problems they could not previously consider. The availability of both C and Fortran encourages use of the Butterfly computer in a wider range of science and engineering applications," he added.

Castleman reported that most use of Butterfly systems is now concentrated in companies, universities and government agencies that are experimenting with parallel processing.

He claimed that a key advantage for BBN is its use of a proprietary switching technology, in which any single processor can communicate with and access the memory of any other processor through a 32M bit/sec. switch rather than via a bus or cube architecture.

Analyst Jeffrey Canin, who follows the supercomputer industry for Hambrecht & Quist, noted that it remains to be determined whether any of the three technologies — a switch, a bus or a cube architecture — holds an advantage over the other two.

He said of BBN, "The firm has a lot of credibility in the scientific and engineering areas." He also noted that the low-profile approach may hurt if a company is targeting a broad commercial market but that it may have helped BBN because of the firm's narrower focus.

Canin added that BBN is operating in a growing market, saying that parallel processing "is the biggest single breakthrough in computing in the 1980s."

The analyst predicted that by the end of the decade the commercial scientific sector will adopt parallel processing.

HP joins laptop price battle

PALO ALTO, Calif. — Hewlett-Packard Co. joined the portable computer price war last week, dropping the price on its 512K-byte Portable Plus computer 11% to $2,995. The company also introduced an ink-jet printer.

HP's price reductions put the company in line with several other laptop computer vendors that cut product prices after IBM entered the market with a $2,200 laptop in April. HP is hoping the new pricing structure will lure customers away from the 256K-byte version of Portable Plus, which is priced at $2,695. "We're finding the 512K version is almost a minimum requirement for people buying our product," a spokesman said.

The price of the Portable Plus extended memory drawer was reduced to $395 from $495, and its 128K-byte random-access memory card was reduced from $350 to $250.

HP's Quietjet Plus ink-jet printer costs $799 and supports HP computers, Apple Computer, Inc. microcomputers and IBM Personal Computers and compatibles. It prints at 48.5db and reportedly can operate during a telephone conversation without disturbing the caller.

The printer has both draft- and letter-quality capabilities. Available immediately, the printer can handle tractor-feed and cut-sheet paper.

— Maura McEnaney

Digital service plans filed

By Mitch Betts

WASHINGTON, D.C. — Southwestern Bell Telephone Co., in a filing submitted to the Federal Communications Commission, last week disclosed plans for a packet-switched digital transmission service in its service areas of Texas, Oklahoma, Kansas, Arkansas and Missouri.

The St. Louis-based telephone company said the Microlink II service initially will include basic packet-switching as well as protocol conversion on an intrastate basis. Subsequent filings will be made for interstate access services, the company said.

The service initially offers asynchronous-to-CCITT X.25, asynchronous-to-X.75 and X.25-to-X.75 protocol conversions, the company said.

Phil Howard, an assistant vice-president for marketing, said the goal of the service is to provide a local gateway to nationwide data networks.

Likely applications are in the financial, insurance, health and retailing industries in which short bursts of data traffic are typical, he said. "We know that we've got some customers who want it," he said.

Howard said the service, which was tested in-house and at several unnamed commercial sites for about two years, is expected to achieve $16 million to $17 million in sales over three years.

The protocol conversion service requires FCC approval, but Howard said the company is confident it will meet FCC requirements.

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Honeywell to market NEC supercomputers in U.S., Canada

Long-rumored venture extends U.S.-Japan tie

By James Connolly

MINNEAPOLIS — In a deal that had long been rumored and reported by analysts to be dead several times, Honeywell, Inc. and NEC Corp. of Tokyo last week agreed to form a joint venture company to market NEC supercomputers in North America.

Honeywell, which already markets NEC mainframes under its DPS 90 label, announced the agreement in principle and said the new company will be established by Sept. 30.

Analysts observed that the deal had been the subject of speculation for many months but that it had appeared dead when NEC itself made its first U.S. sale of the SX II supercomputer to the Houston Area Research Center. That system is scheduled to be delivered this week.

NEC claimed that the SX I and SX II are the fastest supercomputers on the market, with the SX II performing a theoretical maximum of 1.3G floating-point operations per second.

"I think it was critical that NEC find an established marketing group to handle the SX II in the U.S. They will have much better leverage than if they had tried to go it alone," said Jeffrey Canin, supercomputer analyst for Hambrecht & Quist.

Major Honeywell undertaking

Hal Feeney, an analyst with Dataquest, Inc., added, "Honeywell still has to put together quite an effort in terms of training a sales force and support personnel. They will be calling on different types of accounts than their existing customers. Basically they will need new skills — different skills — but they can take advantage of what experience they already have."

Honeywell Group Vice-President Jean-Pierre Rosso, who negotiated the NEC agreement, said no headquarters location has been chosen for the new company and that its staff will probably be a mix of Honeywell, NEC and outside personnel.

Rosso said negotiations began several months ago and that operations should begin in October.

Details not finalized

Rosso said the companies have not finalized details about what each vendor will contribute to the various start-up costs for the equal-equity venture.

He added that NEC has not yet determined whether it will be the new company or NEC itself that provides future support on the Houston contract.

According to Rosso, NEC's decision not to make its SX systems IBM compatible — which rivals what Hitachi Ltd. and Fujitsu Ltd. did with their supercomputers — could prove to be a benefit for NEC and Honeywell because of the strengths of NEC's proprietary operating system.

Links, LANs to rule at PC Expo

From page 1

ed announcement is the enhanced version of Ilink, a micro-to-mainframe link Lotus acquired from Infocenter Software, Inc. earlier this year.

The Ilink package, which will tie micros together into multiple fourth-generation language mainframe environments [CW, June 23], works with many leading mainframe data base programs, including IMS from IBM and IDMS from Cullinet Software, Inc.

Microsoft Corp. will introduce Inport, a single-chip, intelligent device interface that includes a new 40-pin custom integrated circuit and a small, 9-pin connector and works with Microsoft's Mouse. The board with the new chip will be marketed with the Microsoft Mouse.

The mouse chip supports not only the bus mouse but also digitizer pads, joysticks and up to 50K bit/sec. two-way data transfer, according to Michael S. Cooper, manager of Microsoft's hardware group.

The interface contained in the Inport device is being promoted as a prospective standard for both hardware and software developers seeking to integrate graphics input devices such as mouses, Cooper said.

CXI, Inc. will announce PCOX/Graphics-3270 PC, a $395 micro-to-mainframe package that allows a user to access mainframe graphics on a personal computer and provides for multiple sessions. The package emulates the IBM 3270 Personal Computer to obtain its multisession capability and the 3279 Model S3G Color Graphics Display Terminal to access graphics capability on the host. The package, however, requires a $1,995 PCOX graphics board to run. "Now the personal computer can access both host alphanumeric and graphics information at the same time," said CXI spokeswoman Barbara Tobias.

Novell, Inc. is expected to release details of a management reorganization, according to a Novell spokesman. In addition, Novell will announce an OEM agreement with the Interlan division of Micom Systems, Inc. (see story page 8), under which Novell will market Micom's Interlan 5010 PC board. The Interlan board provides a workstation hardware interface for Ethernet networks.

Other scheduled announcements

Other introductions will include Omniserver Professional 75, a new $9,795 version of Corvus Systems, Inc.'s file server. The new Omniserver has 1M-byte of random-access memory, up from 640K bytes, and a 74M-byte internal hard disk, up from 43M bytes on the earlier version of Omniserver. Corvus will also announce that its Omninet local-area network will be able to take advantage of the latest version of Novell's Advanced Netware networking software. With the new version of Advanced Netware, Omninet can handle up to 100 users, up from 63.

Nestar Systems, Inc. will announce an enhancement to its Plan 3000 file server. The upgraded version, which sells for $16,500, comes with 150M bytes of storage and can support up to 255 workstations. The cost of the previous version of Plan 3000, which has 68M bytes of storage, has been reduced 15% to $12,500.

Innovative Software, Inc. will announce its $49.95 Smart LAN Performance Tests program that allows a user to evaluate network hardware to determine speed and pinpoint areas of performance degradation.

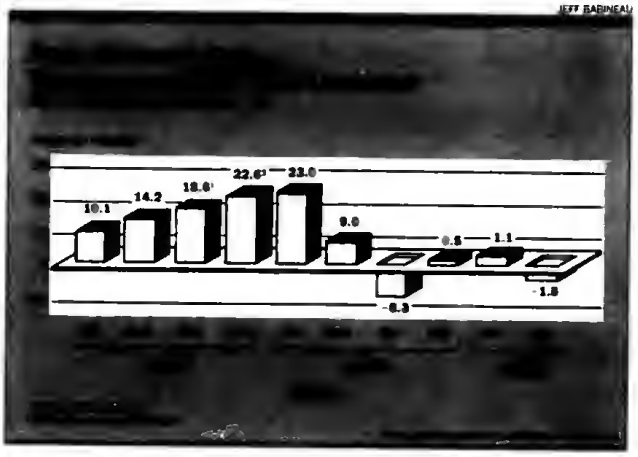
Gateway Communications, Inc. will announce G/Net Plus, an enhanced version of its G/Net baseband coaxial local-area network that is able to support communications servers. The firm will also announce G/Asynch, a $1,440, four-port asynchronous server that supports G/Net Plus. Users can upgrade from G/Net to G/Net Plus for $195. G/Net Plus configurations begin at approximately $2,700.

United Software Security, Inc. will announce Taketwo 1.1, a $165 version of its software backup system that now backs up PC hard disks to both file servers and mainframes in addition to floppy disks, according to Brenda Wheeler, marketing manager for United Software.

Office Solutions, Inc. will announce an addition to its Officelink series, called Officelink/Wordstar. The free product converts Micropro International Corp. Wordstar documents to the Officewriter format and vice versa.

West Coast correspondent Peggy Watt contributed to this report.

JEFF BABINEAU



DG axes 500, slump persists

From page 1

keting, engineering and research and development.

The total reduction of 900 workers will cause DG to take a one-time charge of $11 million, which will probably result in a substantial loss for the third quarter ended June 30. In the third quarter of 1985, DG lost $8.3 million, after one-time charges of $14.5 million, on revenue of $285.5 million.

DG laid off 1,300 workers approximately one year ago in an effort to reduce its break-even point but has yet to regain any earnings momentum (see chart). The firm said last week's downsizing will not result in an improved profit picture until 1987.

Revision of deCastro prediction

The gloomy outlook represented a revision of President Edson D. deCastro's earlier prediction that DG's Eclipse MV/20000 supermini and other new products would spur growth in the second half of 1986 [CW, Feb. 3]. "That was very cautious optimism," said DG spokesman Ken Donoghue. "That was his best-case scenario."

Although deCastro blamed much of the company's sluggishness on "persistent industry weakness," analysts cited several factors within DG itself. Business continues to be strong at Digital Equipment Corp. and, to a lesser extent, at Prime Computer, Inc., DG's traditional minicomputer rivals.

"They blame the economy, but look at DEC and Prime," said George Colony, president of Forrester Research, Inc. in Cambridge, Mass. "DG has structural problems that have been exacerbated by the slowdown."

Colony said DG has lagged in its efforts to refocus from its traditional scientific and engineering markets to be an office automation supplier to commercial organizations. "They have been trying to upgrade the sales force to sell office systems in the Fortune 1,000, but the sales force has continued to be very technology-oriented," he said. "Service and support have been very weak."

"Up to now, there haven't been too many market share gains in their case," said Frederic Cohen of L. F. Rothschild, Unterberg, Towbin. "New customer capture has not been that great."

In an attempt to change that pattern, DG also announced a plan to expand its sales, systems engineering and research and development units in North America by 15% to 20%. It reorganized its sales and marketing organization along vertical market rather than product lines in an effort to sell complete systems to industries such as aerospace, automotive, banking and insurance, Donoghue said.

DBMS image processing claim seen boosting product uses

CCA Model 204 picture storage, retrieval a first

By Charles Babcock

CAMBRIDGE — The Computer Corporation of America (CCA) last week announced that its data base management system, Model 204, has the added ability to process images.

The Cambridge, Mass., software company demonstrated the picture-storing and retrieval capability, along with another new feature of its DBMS — text handling.

Although Battelle Memorial Institute's Basic manipulates text, as do several other specialized mainframe data bases, no other vendor has announced the ability to process pictures on a mainframe, according to William H. Inmon, DBMS specialist with American Management Systems, Inc. in Lakewood, Colo.

"Ten years from now, this will be viewed as one of the major advances in the industry," Inmon said.

Storing pictures

Storing images requires the ability to create large, variable length records — for instance, the typical mug shot, when digitized, consists of 20,000 bytes. While other mainframe data base vendors can also create variable length records, none claim to do so on the scale required to store pictures, particularly with transaction-oriented DBMS, Inmon said.

The picture manipulation capability, dubbed Picture/204, will be available as an add-on to Model 204 in October at a price of $30,000 for the mainframe software and $800 to $950 for picture digitizing and editing software for a personal computer. CCA's micro-to-mainframe link, PC/204, is also required.

Text/204 will be available in December at a price of $47,000, company officials said.

George Schussel, president of Digital Consulting Associates, Inc., an Andover, Mass., consulting firm, said many corporate and research libraries need to store pictures as well as text electronically but have not been able to do so in the past. "There is a big market for picture storage in the various library functions," he said.

The weak link in Picture/204 may be its reliance on a regular micro-to-mainframe link. Because pictures contain many bits of digitized information, their storage and retrieval functions need to operate at high rates of speed, Inmon said.

At a demonstration of Picture/204, the function appeared to run slowly. CCA officials claimed the slow responses were a result of contention for its mainframe. The firm could provide no standard test results on response time.

Text/204 allows a user to search for a document based on the author's name or words appearing in text. It can also perform Boolean operations on document sets, said Marjorie Rigg, a development manager at CCA.

CCA's Model 204 has served niche markets with special needs for selection and access of data, but may now reach broader markets. With an installed base of 500, "they're a small player. They probably don't have more than 4% to 5% of the market," Inmon said.

TOP OF THE NEWS

NEWS from page 1

that without the cost savings lessors could offer with the investment tax credit, it prefers to assume the residual value risk of the 3090. Merrill Lynch previously leased much of its more than $1 billion DP equipment portfolio.

■

A 73-year-old government decree that became an obscure footnote to Burroughs' takeover of Sperry was lifted last week. A federal court in Detroit officially terminated a 1913 decree that barred what was then the Burroughs Adding Machine Co. from acquiring "controlling stock interest in a competitor" without court approval.

Meanwhile, Burroughs Chairman W. Michael Blumenthal and Sperry President Joseph J. Kroger just ended a four-day European tour to discuss their merger with major European users and employees. According to Blumenthal, the merged companies may consolidate semiconductor operations.

■

Storage Technology's 4,000 employees are scheduled to gather at a company picnic today to hear STC Chairman Ryal Poppa discuss the bankrupt company's plans to repay its creditors approximately $800 million.

■

PC-clone maker nee disk drive vendor Tandon Corp. is formally unveiling its line of IBM Personal Computer XT and AT compatibles tomorrow in New York. Tandon is telling dealers it will be offering PC AT compatibles at XT prices and XTs at PC prices. Dealer sources said Tandon is quoting the retail price for an Intel 80286-based machine with a 1.2M-byte floppy disk and 1M byte of random-access memory at $2,195.

■

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Government PC purchases jumped in '85

Feds bought at least 67,000 micros; IBM, Zenith provided 42%

By Mitch Betts

WASHINGTON, D.C. — The number of microcomputers in the federal government increased in the past year to between 140,000 and 150,000 units, according to the latest estimate of the U.S. General Services Administration (GSA).

A new GSA survey showed that federal agencies acquired 67,502 micros in fiscal 1985, compared with 37,277 acquired in fiscal 1984 and 7,908 in fiscal 1983.

About 42% of the micros acquired in fiscal 1985 came from just two vendors — Zenith Data Systems Corp. and IBM, the survey showed.

Major changes

GSA predicts that there will be 500,000 micros in the federal government by 1990 and that the technology of end-user computing will result in major changes in the way federal agencies operate.

Frank J. Carr, commissioner of GSA's Information Resources Management Service, said agencies are making big investments in micros to help accomplish more work at less cost with fewer people.

Indeed, a recent GSA survey of 208 micro users in the government showed that they believe micros have helped them to produce more timely work, increase productivity, improve analysis and increase the accuracy of their work, according to Irene S. Bayol, a GSA policy officer who conducted the study.

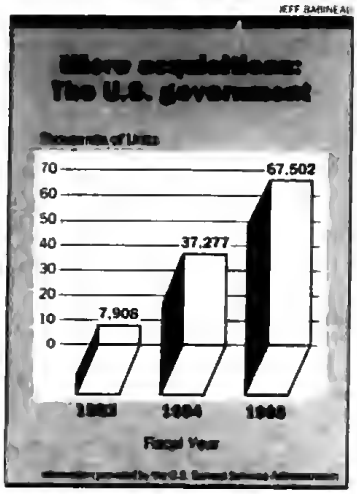
The user survey found that most have used a micro for less than two years and are frustrated by the lack of continuous training as well as the complexity of micro software.

Mid-level professionals

Bayol said the survey indicated that most users are mid-level professional workers, especially DP professionals. Top-level executives in the government rarely use a micro, she added.

The GSA is undertaking a series of surveys and programs to help prepare federal managers for the next wave of end-user computing.

JEFF BARONE AI



"To plan for the future, we have to understand how this equipment is being used and what problems and accomplishments agencies are experiencing with it," Carr said.

The big challenge facing federal managers is the need to integrate the micros so that small groups of federal workers can share data and software, according to a draft GSA report on end-user computing.

Instead of dictating microcomputer standards, the GSA said it will encourage "natural integration" among small groups of micro users with common needs at each agency.

The draft report said GSA will also try to improve micro security policies, revitalize the records management program and study software site licensing arrangements.

Technology for federal buildings

One pressing need is to integrate computer technology into federal office buildings, perhaps by creating intelligent buildings, the report said.

"One need only walk through any federal office building in Washington, D.C., to see that end-user technology is making a mess of our buildings," it said, referring to clusters of strung cables exposed in hallways and running along the floors and walls of federal offices.

"Equipment sits on 1940-vintage desks, on bookcases, on window shelves and on top of file cabinets," the report added.

According to the statistical survey, four departments — the U.S. Navy, Air Force, Department of Agriculture and Department of the Treasury — accounted for more than half of the new units acquired in fiscal 1985.

Zenith leads suppliers

Federal agencies bought more micros from Zenith than from any other supplier in fiscal 1985, purchasing 15,406 Zenith units for $42.8 million.

The ranking illustrates Zenith's ability to win large contracts from the military, a GSA official said.

Agencies bought 13,567 units from IBM for $47.7 million and 6,761 units from AT&T for $6 million, the GSA reported.

Big Blue to resell Novell software, add connectivity

By Stanley Gibson

OREM, Utah — Novell, Inc. said last week that IBM will resell Novell's recently released Advanced Netware 2.0A.

The agreement follows a November 1985 agreement that allowed IBM to sell Novell's Advanced Netware/PCN, Advanced Netware/C and Netware Bridge.

"By replacing PC Network operating software with Advanced Netware 2.0A, the user will receive, among other benefits, the ability to connect virtually every other major brand of networking hardware," said Craig Burton, Novell vice-president of corporate marketing and development.

Advanced Netware 2.0A supports a total of 18 network topologies, including the IBM PC Network, the IBM Cluster and the IBM Token-Ring network, according to Novell.

"It does provide the IBM user with a significant degree of flexibility that they wouldn't have otherwise," said David Terrie, president of Newport Consulting in Boston. "The key idea is to have the same software running on Ethernet, Token-Ring and PC Net," he added.

The Novell offering fills a "special case kind of role" for customers that have existing non-IBM networks and who may want to add IBM products, Terrie said.

Separately, Novell said it would expand its OEM hardware offerings by selling Micom Systems, Inc.'s Interlan 5010 PC boards, which provide a workstation with the hardware interface required in an Ethernet network. Novell will offer the boards either individually, for $650, or in combination with its Advanced Netware software.

Airlines' fusion breeds spin-off

From page 1

Airlines, Inc. and New York Airlines, Inc. "It creates a critical mass in a very, very important area," Richard E. Murray said. Murray will become president and CEO of the subsidiary upon completion of the merger.

By operating as a self-sufficient profit center, the subsidiary, System One Corp., can also attract and retain technical personnel and make capital investments without being "encumbered" by its parent company's situation, Murray said.

Hans Plickert, an airline analyst with E. F. Hutton & Co., expressed a supportive view. "Texas Air is not big enough to have [a reservations system] of its own, and it costs too much to develop one," he said.

But the move is basically a defensive one that will put the system in a less distant third place behind American Airlines, Inc.'s SABRE system and United Airlines, Inc.'s Apollo, said John Pincavage, an analyst with Paine Webber.

Texas Air is looking into a partial integration of the three operations that would cost less than complete integration and would provide flexibility and backup capabilities, said Murray, who currently is president of Texas Air's CCS Automation Systems, Inc.

CCS sells computer and telecommunications services and software to other airlines and provides them internally. It will be combined with a similar unit at Eastern and with Eastern's System One Direct Access (SODA) reservation system, which travel agencies use to book flights.

Last Tuesday, Eastern spun off its reservations operations — as System One Direct Access, Inc. — and its services and software unit — as EAL Automation Systems, Inc. Both companies are subsidiaries of Eastern Airlines.

After completing its merger with Eastern — which will probably happen about the end of August — Texas Air plans to combine the three operations into the System One subsidiary.

SODA is the third largest airline reservations system used by travel agents, with about 5,000 installations that account for 10% to 12% of the dollar volume of total flights booked by the airline systems, according to Murray. He said that Eastern Airlines reaps a revenue of approximately $100 million per year in fees from travel agents and from the roughly 200 airlines that book flights through SODA.

EAL Automation generates about $150 million in revenue per year from sales of computer services and software, about 70% of which comes from Eastern, Murray said. By comparison, he said, CCS brings in about $50 million a year, roughly half from Texas Air's airlines. Together the units serve about 200 airlines by providing services such as baggage handling, route planning and maintenance, Murray said.

IBM mainframes

The three operations to be combined in the System One firm run IBM mainframes in three cities. SODA and EAL Automation's systems run on more than a dozen of the machines, including an IBM 3090 Model 180. CCS Automation uses two 3090 Model 180s, a 3081 and a 3083 at its Los Angeles headquarters and two smaller machines for financial tasks at Texas Air's headquarters in Houston.

Texas Air is currently studying a "host interactive concept of lashing together" the three systems, Murray said, to see how the benefits of that approach would compare with those of consolidating them into one. He explained that the partial integration is less expensive and that such a distributed network of mainframes may be preferable due to its flexibility, particularly as the volume of data to be processed grows. It would also provide redundancy protection against catastrophes, he said.

The partial integration would provide the ability to write or read from one system to the other, which is now possible through high-speed links, Murray said. It would also give the ability to "clone" a new record to be deposited in both systems, he said.

Whatever the approach to integration may be, according to Murray, Texas Air expects to lower costs through the ability to move data directly among systems, to reduce the amount of storage space it requires and to reap economies of scale in programming.

Texas Air will compare the redundant operations applications of CCS Automation and EAL Automation — such as weather analysis and aircraft maintenance — and decide which one to use for all the airlines, Murray said.

While System One will be based in Houston, the headquarters for the SODA system and EAL Automation will remain in Miami, while CCS Automation will continue to run from Los Angeles, Murray said.

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ORACLE Seminar Schedule

AK	Anchorage	Jun 24
AZ	Phoenix	Jun 5, Aug 5
CA	Los Angeles	Jun 10, Jul 10, Aug 6
	Newport Beach	Jul 15
	San Diego	Jun 17, Aug 7
	San Francisco	Jun 19, Aug 5
	Sunnyvale	Jun 10, Jul 8, Aug 7
CO	Denver	Jun 17, Jul 17
CT	Hartford	Jul 16
	New Haven	Aug 20
FL	Jacksonville	Aug 5
	Tampa	Aug 6
GA	Atlanta	Jul 15
IA	Des Moines	Jun 25, Aug 27
ID	Boise	Jul 31
IL	Chicago	Jun 12, Jul 8, Aug 14
IN	Indianapolis	Jun 17, Aug 19
KY	Louisville	Aug 7
LA	New Orleans	Jul 11
MA	Boston	Jun 19, Jul 16
	Burlington	Aug 12
MD	Bethesda	Jun 12, Jul 9, 23, Aug 7
ME	Bangor	Jul 3
MI	Detroit	Jun 10, Jul 15, Aug 19
	Grand Rapids	Jun 13
MN	Minneapolis	Jun 26, Jul 22
MO	St.Louis	Jun 11, Jul 30
NE	Omaha	Jul 9
NJ	Cvt. Station	Jun 5, Aug 7, 28
	Iselin	Jul 8, 22
NY	Albany	Jul 23
	New York City	Jun 12, 25, Jul 24, Aug 12, 26
	Rochester	Jun 19, Jul 10, Aug 13
NY	Syracuse	Aug 19
OH	Akron	Jul 23
	Cincinnati	Aug 5
	Cleveland	Jul 22
	Columbus	Aug 12
	Dayton	Jul 8
OK	Oklahoma City	Jun 24
	Tulsa	Aug 26
OR	Portland	Jul 24
PA	Harrisburg	Jul 8
	King of Prussia	Jul 24
	Philadelphia	Jun 18
	Pittsburgh	Jun 19, Aug 7
	Scranton	Aug 5
RI	Providence	Jul 8
TX	Austin	Jul 10, Aug 19
	Dallas	Jun 11, Jul 22
	Ft.Worth	Jul 18
TX	Houston	Jun 10, Aug 19
	San Antonio	Jul 8, Aug 27
UT	Salt Lake City	Jun 5, Aug 6
VA	Norfolk	Jun 4
	Richmond	Jun 19
VT	Burlington	Aug 6
WA	Seattle	Jun 12, Jul 15
WI	Milwaukee	Jul 17

Canadian Seminars

Calgary	Jun 3
Halifax	Aug 20
Ottawa	Jun 12, Jul 12, Aug 14
Chicoutimi	Jun 18
Toronto	Jun 3, Jul 8, Aug 5
Vancouver	Jul 10
Winnipeg	Jun 3, Aug 5

Agency employs data network to run job placement service

Enlarged net to promote standards in field offices

By Jeffry Beeler

SACRAMENTO, Calif. — A California government agency last week began testing a statewide communications network that the organization recently expanded and updated to promote standards among the facility's field office nodes.

Since January, the Employment Development Department (EDD) has installed Prime Computer, Inc. Model 2350 and 2450 minicomputers in 18 of its 51 offices.

At the same time, the EDD also linked the recently acquired machines to both its central processor in the state capital and to the 12 Prime 750s and 450s it had in other branches.

The result is an enlarged data communications network that will support the EDD's efforts to run a federally funded vocational training and job placement service for California welfare recipients.

When the network goes into operation in late August or early September, each of the state agency's field locations will collect information about the employment opportunities and job seekers in its jurisdiction. "We plan to keep track of the kinds of training our clients receive and the outcome of that training," said Michael McKinney, MIS manager for the EDD placement program. "We also plan to gather information about the trainees' ethnic origins, educational backgrounds and economic status."

After being captured electronically in decentralized systems, the information from each branch office will be sent periodically over dial-up WATS lines to a Prime 750 at EDD headquarters. The ability to transmit distributed data bases to a single point and then consolidate them will be made possible by Prime's Primenet communications software.

In enhancing its statewide network, the EDD expects to benefit welfare recipients as well as the government agencies that oversee the federal placement project, known as the Job Training Partnership (JTP).

For the EDD, the interconnection of the central and remote locations will aid the preparation of reports and analyses, which state officials require to "track the JTP's effectiveness," McKinney said. From the same headquarters data base, the agency will also be able to produce performance evaluations for the San Francisco office of the U.S. Department of Labor, which funds the JTP.

Another recipient of JTP-related information will be the California legislature, which will gain access to the EDD central system with an IBM Personal Computer XT running a Prime file transfer utility.

Depending on their content, the branch office reports will go to their respective destinations once each month or quarter. The network will also have the ability to respond to impromptu requests for information by selected government users.

"Suppose, for example, the governor wants to find out how many women in Los Angeles County have been placed in a particular kind of job," McKinney hypothesized. "To get the answer, an aide would simply have to run an ad hoc query against one of our remote data bases in Southern California."

For welfare recipients, meanwhile, the EDD network's main virtue lies in its ability to hasten job placement by automatically matching trainees to the employment openings that best suit their skills. "Because the network will allow our branch offices to exchange information about their clients and work opportunities, we'll be able to open the entire state as a job market for each of our prospects," McKinney said.

Systems uniformity

Installation of the 2350s and 2450s will substantially increase the EDD network's degree of systems uniformity. In the past, the department's field locations, often referred to as "service delivery areas," housed a hodgepodge of sometimes incompatible systems that made electronic file transfer difficult.

Now, with the $1.3 million acquisition of the 2350- and 2450-based systems, the EDD is seeking to foster connectivity by removing dissimilar network nodes and standardizing on Prime equipment. Moreover, after the department's headquarters office completes a planned upgrade to a Prime 9950 or 9755 superminicomputer, "we intend to make Release 20.0.3 of the firm's operating system a standard in each service delivery area," McKinney said.

Another consequence of the EDD's network improvements is the advent of automation in certain remote sites from which information has previously been gathered and processed manually.

Designed by Government Systems Group, Inc. and built around the Irvine, Calif.-based vendor's Grants Management System software, the network will be tested extensively before it swings into production in about two months. "One of the things we definitely want to test is user procedures," McKinney said. "We want to learn how well they work and how much we'll have to change them."

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Terminal bargains

From page 1

an analyst with Framingham, Mass.-based International Data Corp.'s (IDC) workstation market program. "With between 40 and 50 terminal makers in the market, users should consider who is going to be around over the next few years."

"We were pretty clear on the features our terminals needed because of our previous experience," says Maria Koba, who installed a decision support system for the financial planning and analysis department at Dean Witter Reynolds, Inc. in New York a year ago. "From our standpoint, that meant the physical attributes, the functionality and the ever-popular price."

Koba settled on terminals manufactured by Wyse Technology, Inc. of Milpitas, Calif., because, she says, they provided her with the most functionality at the lowest price. But Koba was also attracted by the terminals' look, she recalls. "It's funny to say that it comes down to looks, but then what does the user really see?"

What corporate customers see are dozens of vendors scrambling to maintain a competitive edge and, in most cases, relatively small shares of the market (see chart page 13).

The tenuity of that edge is evident in the battle between intense rivals Wyse and Televideo Systems, Inc., headquartered in nearby Sunnyvale, Calif. Wyse currently leads the independent terminal market, having snatched the top spot in 1984 from Televideo Systems. At that time, Televideo was sidetracked, it now admits, by its entry into the personal computer market.

Today, the seemingly infallible Wyse and a revamped Televideo are ready to do battle again, but this time, the war involves IBM Personal Computer AT-compatible products.

Since it became the nation's largest terminal vendor, Wyse has never looked back. Sales at the publicly held firm reached $166 million last year, twice those of Wyse's closest competitor. Profits grew 121% in 1985, from $5.7 million a year ago.

Wyse's growth (made possible by its decision to manufacture all products in Taiwan), its slick product line and its entrepreneurial management style have earned it a glowing reputation among analysts. "If there was a who's who of terminal vendors, Wyse Technology would have to appear at the top," says IDC in its "ASCII Market Report."

But as Wyse continues to tear up the market, struggling Televideo Systems, recuperating from 1985 losses of $19 million, is preparing a vehement attack on its rival.

"I don't think you should go to a bar and bend your elbow with your competitor. I think you should hate your competitors. I want to see them out of business," says Elliot Wassarman, Televideo senior vice-president of marketing and sales.

Wassarman is one of three new executives to join Televideo after the record losses forced a management reorganization of the company in 1985.

Focus on VDTs

Founded in 1975 by Korean immigrant K. Philip Hwang as a manufacturer of video game monitors, Televideo switched its focus to VDTs in 1978.

The company quickly earned a reputation as an aggressive leader in the low-cost terminal market and was the first to implement a detachable keyboard. In 1981, Televideo was the largest independent terminal vendor in the U.S. terminal market, capturing an 18% market share, Dataquest, Inc. figures note.

Televideo went public in 1983 in what "California Technology Stock Letter" says was "one of the spectacular new issue underwritings of 1983." Sales that year peaked at $168 million, and ground was broken for a luxurious office building in San Jose, Calif.

But in a quest to expand its business, Televideo was lured into the retail personal computer market in 1983 with the introduction of an IBM PC-compatible machine.

To compete with vendors like Eagle Computer, Inc., Victor Technologies, Inc. and Columbia Data Products, Inc., Televideo poured millions of dollars into retail advertising and worked all ends of its distribution chan-

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nels, selling to dealers and directly to corporations.

"They and everyone else were trying to become what Compaq Computer Corp. became," says Michael Murphy, "California Technology Stock Letter" editor. "Everybody else went broke. Televideo didn't because it still had its terminal business."

Televideo's infatuation with microcomputers caused it to lose sight of its terminal business, providing ample opportunity for the competition. In 1984, newcomer Wyse introduced its flagship product, the WY50 terminal. At $200 less than the Televideo 925 terminal, the product was the first to provide a 14-in. display and ergonomic features that let users adjust the screen position.

Sales of that product skyrocketed. By 1984, Televideo had dropped to the No. 5 spot in the ASCII terminal market, according to IDC. In 1985, it lost $19 million on sales of $103 million.

Wyse also entered the IBM PC-compatible market in 1984 with the Wyse PC; however, it limited its sales to existing OEM vendors.

Wyse's founding

Wyse was founded in 1981 by 36-year-old Bernie Tse, a former display engineer at Zentec Corp., Tse's wife Grace and Zentec alumni Garwing Wu and Larry Lummis.

Early on, the partners persuaded Altos Computer Systems, Inc. to invest $5 million in the fledgling terminal company.

Although it remains one of Wyse's largest customers, Altos sold its interest in Wyse earlier this year. The relationship between the two companies became even more entangled when Phil White, Altos vice-president of marketing, became Wyse's new president. He replaced Tse, who moved up to chairman.

After finding itself distracted in the terminals market, Televideo is bracing itself for a comeback. "Televideo has made some strides in 1985," IDC's Goldman notes.

Transferred facilities

Last year, Televideo completed the transfer of its manufacturing facilities to Korea, halved its number of employees, moved back to its old building and reduced inventory levels from $81 million to $21 million.

Televideo is also paying more attention to product design, incorporating a look of its own — a popular feature among users who want terminal standardization, and one that gave Wyse a competitive edge.

"A year ago we offered 11 terminals in six case designs. Today, we offer four terminals, three have the same case design," Wassarman notes.

For the second quarter ending May 2, Televideo announced break-even results, posting a $19,000 profit, compared with a $678,000 loss for the same period a year ago.

"We got distracted as the company was getting into the PC business," Wassarman admits. "We took our eyes off our market."

But that market is changing, according to analysts, who say they believe terminal companies must vary their product lines in order to compensate for slow growth.

"The terminal business is a slow growth business. Its markets are blurring," says Joel Hausman, analyst at Robertson Colman & Stephens in San Francisco. Terminal shipments this year are expected to increase 12%, but annual growth will decline 8% by 1991, IDC says.

To compensate, both Wyse and Televideo have introduced IBM PC AT-compatible products that they hope will enhance their existing product lines.

In a break with the past, Televideo is selling its recently introduced Tele-CAT 286 AT machine within its existing channels.

Earlier this month, Wyse introduced its version of the AT [CW, June 9]. The version will be sold through both Wyse OEM customers and in Businessland retail stores.

There is some skepticism about both companies' entrance into the PC market. "The AT clone market is absolutely crowded as hell," says "California Technology Stock Letter" 's Murphy.

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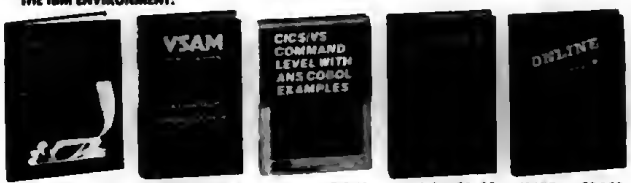

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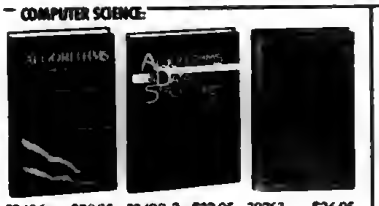

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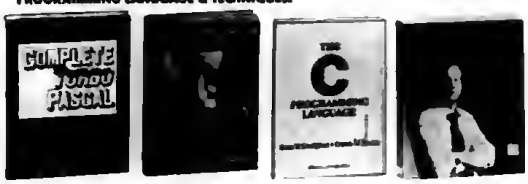

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Privacy threat seen by agency

From page 1

provided by Congress or the executive branch on use of data collected by the government. The privacy protections embodied in the Privacy Act of 1974 are weakened by increased technological capabilities employed by federal agencies, the OTA said.

The government's increasing use of microcomputers, computer networking and data exchanges has in turn increased the opportunities for the improper use or disclosure of personal information, the OTA researchers concluded. (A comprehensive report on these privacy issues appears in this week's Executive Report, page 53.)

For example, the Privacy Act prohibits the government from keeping dossiers whose very existence is secret, but it is not clear whether that rule applies to files kept on microcomputers, the OTA said.

One purpose

In addition, the increasing use of computer matching erodes the Privacy Act's requirement that information used for one purpose not be used for another purpose, the OTA noted. For example, tax records are now used to track down welfare cheaters [CW, March 31].

"These technological advances enable agencies to manipulate and exchange entire record systems, as well as individual records, in a way not envisioned in 1974," the report said. "Moreover, the widespread use of computerized data bases, electronic records searches and matches and computer networking is leading rapidly to the creation of a de facto national data base containing personal information on most Americans," it continued. There are three billion records of personal information stored on government computers, the OTA said.

Despite congressional objections, the ever-present Social Security number has become a virtual "national identifier" that is used in data searches by the government, the OTA report added.

Furthermore, the U.S. Office of Management and Budget (OMB), which has responsibility for governmentwide privacy policy, has failed to provide the needed oversight, the OTA report said.

The OMB is not effectively monitoring such basic areas as the completeness and accuracy of government records, the protection of personal records accessible by microcomputers or the cost-effectiveness of computer matching, the study said.

A survey conducted by the OTA found that 13% of the federal records systems are audited for record quality, and 8% of the federal agencies have privacy policies for records stored on micros. Most agencies have only one staff member assigned to implement the Privacy Act, the survey found.

Since 1974, political attention has shifted away from privacy concerns and toward efficiency and cost cutting, the study noted. "Neither Congress nor the executive branch is providing a forum in which the privacy, management efficiency and law-enforcement implications of federal electronic record system applications can be fully debated and resolved," the OTA concluded.

However, the OTA report may trigger the introduction of new privacy legislation. U.S. Sen. William S. Cohen (R-Maine) said he will soon introduce a bill to establish "more individual privacy and due process protections in data exchanges by the federal government." Sen. Albert Gore Jr. (D-Tenn.) also expressed support for additional privacy guidelines. Cohen and Gore are members of the Senate Committee on Governmental Affairs, which has been pushing for an assessment on the impact of technology on privacy.

The OTA, an advisory body for legislators, suggested that Congress consider either creating a stronger oversight agency or setting policy itself to resolve specific privacy issues.

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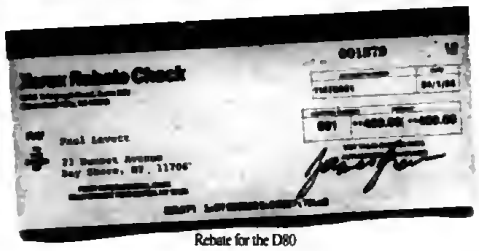

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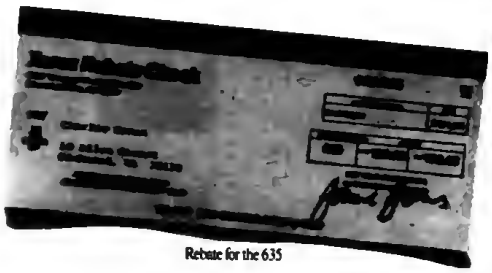

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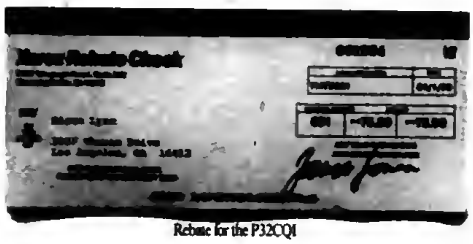

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AT&T System 25 replaces Horizon as low- to mid-range PBX

Fills gap between Merlin, System 75

By Alan Alper

NEW YORK — Filling a gap in its private branch exchange (PBX) product line, AT&T last week introduced a low-end digital switch with voice and data capability aimed at small- to medium-size businesses.

Called System 25, the small PBX is targeted at customers that have 20 to 150 voice terminals. It fits in the market niche between AT&T's Merlin 3070, a voice key system that serves between two and 70 stations, and the System 75, a large PBX that handles up to 700 voice or data stations.

The System 25 essentially replaces Horizon, a key system introduced in the late 1970s that evolved into AT&T's low-end PBX offering. Last year, AT&T said it would phase out production of Horizon in 1986.

"This product unifies AT&T's product line from Merlin through System 75," noted William Rich, an analyst with Northern Business Information, Inc., a New York-based communications market research firm.

Priced from $550 to $750 per voice station, the System 25 is available now, AT&T said. It is being offered only by AT&T's General Business Systems sales force.

The System 25 operates with the same four-pair wiring arrangement as Merlin and the System 75 and can be used with a range of existing voice terminals, from low-end, basic five-button sets to 34-button sets. It also supports Merlin system voice terminals, Horizon 10-button Met terminals and industry standard Touch-Tone sets.

"These compatibilities allow customers to save money when they need to grow from a Merlin to a System 25 and from a System 25 to System 75," said John Bianchard, vice-president of AT&T's General Business Systems group.

AT&T designed System 25 using the same architecture as the System 75. It uses the same protocol and switching devices as the big switch, noted John Gunn, director of product management for the System 25.

Using surface-mount technology, AT&T was able to pack more circuits onto each System 25 printed-wiring board. This enabled AT&T to offer many System 75 features in the smaller switch in a package the size of a microwave oven, Gunn said.

Cost savings

"Because it is highly automated, surface-mount technology is a process that leads to cost savings in manufacturing costs," Gunn added.

Modular in design, the System 25 features 33 universal slots with up to 240 ports that can be configured in a variety of ways. System 25 can accommodate up to 200 voice stations with 104 trunks or 104 data connections or both. Up to 115 simultaneous voice and data connections can be handled, AT&T said.

Other features include automatic route selection, which switches calls to the least expensive circuit, call following, one-touch dialing, hands-free answering, conferencing, automatic callback and electronic message waiting.

AT&T designed System 25 in such a way that data capability can be added when customers require it. AT&T is charging $400 to $500 per data connection, according to Gunn.

The switch also offers a modem pool feature that provides for personal computers and terminals to share modems.

Blanchard said that with the System 25 AT&T was going after the competition's customer base in a market segment "that has not been our strongest." Analysts intepret that to mean AT&T is seeking to compete with Rolm Corp.'s recently introduced Redwood and to entice Rolm VSCBX and Mitel Corp. SX 200 users to System 25.

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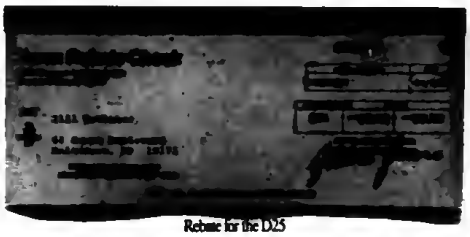
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VIEWPOINT

EDITORIAL

The privacy challenge

Privacy is one of those issues that most of us thought was settled back in 1776.

Guess again. Privacy, or the right to freedom from unauthorized intrusion, may be well on its way to becoming a seriously endangered species in 1986. Today, new developments in computer technology are providing tools for new, more sophisticated levels of privacy abuse.

This week, a research arm of the U.S. Congress, the Office of Technology Assessment, will release a report dramatizing the fact that there are precious few safeguards currently in place to guarantee the security of the federal government's three billion personal data files. "Few staff are assigned to Privacy Act implementation, few agencies have developed guidelines in response to technological changes, and few have conducted record quality audits," the report says.

Things are not much better in the private sector. In this week's Executive Report, "Safeguarding privacy," we learn that probably no more than 50 of even the largest and most sophisticated U.S. corporations are doing any more than Uncle Sam in protecting sensitive information, and some are doing far less.

The reality of the situation presents information systems managers in business and government with one of their most significant management challenges in recent memory: the challenge of accepting responsibility for the integrity of the personal data within their technical domain. Action on this responsibility must begin with clear understanding of how the current danger came to be.

The microcomputer revolution pushed more and more information out to user populations, making more data available to more people — including those who may not be aware of the sensitivity of some data and who are certainly not trained, as data processing personnel are, to think about the correct ways of handling such data.

In fact, gathering and storing information carries with it a serious responsibility to simultaneously set up methods for safeguarding that information, whether it relates to employees, customers, competitors or citizens. Failure to attend to the problem will ultimately raise serious consequences.

Disclosures of confidential employee information can lead to employee unrest; disclosures of client information can result in lost business; disclosures of internal data can aid competitors or embarrass the corporation. In many cases, failure to protect data violates existing local, state or federal law. And widespread abuses would most certainly result in further legislation, even regulation, that is better handled by organizations policing themselves.

The opportunities to misuse data grow daily as more microcomputer, networking, electronic mail and other office automation products are put in place. MIS managers must take the lead in reshaping data management techniques traditional in mainframe shops to the end-user environment. Only they can provide the technical guidance and expertise needed to understand the problem, educate top management, establish guidelines and, finally, educate users.

LETTERS TO THE EDITOR

Unix users not ready for Release 3

The latest and greatest Unix, AT&T's System V Release 3.0, seems to be generating quite a bit of interest. People wonder why there is little user interest. This is probably not what AT&T had in mind.

There is actually a simple explanation for all this disinterest: Not too many people understand the new toys, and the vast majority of System V users do not need them — yet.

Although there are several added features, the biggies are demand paging and the new network environments, most notably Remote File System and Streams.

Demand paging used to be the one big feature that University of California at Berkeley versions of Unix had that AT&T's did not. In science-oriented areas, very large pieces of code are common; users need demand paging and are Berkeley version users. Most business users' code is small enough that the need just is not there, so they rightly will not see any compelling reason to convert (just recompile) to System V. Demand paging also does away with swapping, so it will also help performance, but it is hard to say how much.

The networking goodies are not notable so much for what they do overtly but for what they provide in an environment for sane, sensible networking of many machines in an efficient manner.

To me, that really means utter transparency. I can use any file, device or program on any other machine as long as I have the correct permissions; I do not have to log on to the remote machine and transfer files back to my machine just to do my work, although that remains an option.

Essentially, this makes it possible to have multiple servers for multiple machines. I hear that we will soon have a 3B2-based net server for personal computers from AT&T that will make the Unix tools for communication and data manipulation available to the system manager.

Now consider a distributed data base not only spread out among multiple disk partitions but even between machines. That is what the new networking tools make possible.

It is obvious that such a scheme, if it all goes well, should support not only very large data bases but also keep performance at acceptable levels. Both things were previously impossible under Unix, at least in normal scenarios (that is, in commercial products).

What is not obvious is that the higher level network environment is not dependent on any particular low-level transport protocol, meaning that the distributed environment could be implemented on Xerox Corp.'s Xerox Network Service or even IBM's Systems Network Architecture.

Also not obvious is that System V.3 is the first release of AT&T Unix that effectively subsumes the major architectural features (you could probably get some arguments about this) of the Berkeley version of Unix.

This level of feature competence is a necessary requirement for actually merging the Berkeley Unix versions into the Unix mainstream, that is, System V. The merger is a stated goal of AT&T, and at least one prominent Berkeley proponent, Sun Microsystems, Inc., is an active partner in this effort.

Bringing Berkeley back into the fold is desirable not only for purely commercial reasons, since the fragmentation hurts marketing, but it also could defuse the prevailing public opinion that Berkeley is technically superior to System V (*if* System V.3 lives up to its promise). That would make AT&T feel better and also help marketing.

Some large users, notably General Motors Corp., in making Unix availability a system requirement, have recognized that Unix is a key element in bridging the various software and network environments that they are trying (and succeeding with the Manufacturing Automation Protocol) to integrate. The new network tools will go a long way toward making the protocol really work, from the computer-aided design machines all the way down to the numerical control machines, with links to the office and the mainframes thrown in.

That is what is really new and neat about System V.3. It remains a question whether AT&T will be able to get a product that takes advantage of these features to market in a timely manner.

Ernest Wylie Harkins
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*Letters should be addressed to the Editor, **Computerworld**, Box 9171, 375 Cochituate Road, Framingham, Mass. 01701-9171.*

VIEWPOINT

DP struggles against artificial intelligence invasion

There are certain topics sure to make people in data processing cringe: Budget cuts is one; customer support is another. And yet another is artificial intelligence.

Why AI? As a technology it has the power to make computers operate as never before, yet data processing is already circling the wagons against this strange invader. Women, children, personal computers — no one is safe.

Almost all of the misconceptions about AI occur simply because many have heard about it, but few have seen it. It remains something locked in darkened labs at major research and academic facilities throughout the country. But if seeing is believing, one should examine some of the existing products to get a sense of what is being done in AI to solve problems in the world of data processing.

Picture if you will a data base list containing more than 10 million names of people slated to receive direct mail catalogs or credit card solicitations. Every time promotional material is sent, it goes to a majority of the people on that list in what is usually a hit or miss proposition.

Newquist writes and consults on artificial intelligence and other advanced high-technology topics from his office in Scottsdale, Ariz.

Yet, this approach is one that must be taken by companies such as American Express and Spencer Gifts, which fork over thousands and thousands of dollars to the U.S. Postal Service when they want to stage a massive direct mail campaign. In return, they end up reaching both qualified and unqualified people, but they still have to shell out the money to have every piece delivered.

By HARVEY P. NEWQUIST

The solution? Both companies are implementing a system called More from Persoft, Inc. of Woburn, Mass. More is an expert system that takes information about the names on the mailing list (such as their response rate, demographic valuation and so on) and pares the entire list down to the most appropriate names for a particular mailing. In addition to reducing the mailing costs, the expert system improves the percentage of response by identifying qualified recipients.

An isolated incident? Hardly. Expert systems are not the only aspect of AI finding their way into DP. Many companies use natural language interfaces to aid in information retrieval. General Electric Co., Westinghouse Electric Corp. and Eastman Kodak Co. employ voice recognition systems to minimize data entry time and transcription errors.

For an industry that prides itself on being on the cutting edge of high technology computing, DP is ignoring AI for all the wrong reasons. If it were called anything else (software enhancement software, perhaps?), there would be passionate pros and cons for its implementation from all corners of the computer industry. Users groups, conferences and seminars and a whole new wave of messiahs could be counted on to spread the word.

Looked at as a solution, AI presents some very real alternatives to struggling through problems that face all computer users, not just professional data processing personnel. AI technologies such as natural language interfaces and automatic code restructuring could save a lot of heartache in situations where traditional computing just gets too laborious and expensive.

Thirty years ago, chess-playing computers would have been considered AI, and 15 years ago, any mechanism that had the nerve to talk in a synthesized human voice would not have been called AI. In 1986, however, you do not buy chess-playing computers from Cray Research or IBM; you buy them from Toys R Us. And a brand new car, cash register or camera can easily talk your ear off.

AI already used in DP environment

Putting it in perspective, there are AI products that already have potential in data processing and in fact are used frequently in that environment. No matter what they are called, these products are very important pieces of a technology directed toward improving efficiency and interfaces in computing. Currently, they all come from vendors that usually fall into the rank and file of AI companies.

Some of these companies are trying to shed this image, since the presence of AI within DP is about as popular as contracting rare and infectious diseases. You still cannot buy AI products from Cullinet Software or McCormack & Dodge. But soon even these software companies will integrate AI techniques and products into their products — so much so that what was once considered AI will be totally transparent to the user.

Do not be put off by the intrigue, sensationalism and hype that goes along with the term artificial intelligence. Whatever a product is called, the most important criterion will always be whether it works. Because if it does not, no amount of magic, mystery, sleight of hand or AI is going to help it.

Terrorism in the information age: A recipe for disaster?

Take your ordinary, garden-variety terrorist. Add a tempting, unprotected corporate target that contains one of the organization's most vital strategic assets — a target that, if knocked out, could lead to major disruptions of service or even to corporate bankruptcy.

What you've got is a recipe for disaster — the soft underbelly of the information age — and it's time to shake off some of the dangerous complacency that now exists at corporate and governmental computer data centers across America. In fact, the shadow of Colonel Khadafy and memories of the Mexico City earthquake are, indeed, beginning to haunt corporate and DP managers everywhere, making the vital information in their charge suddenly seem very, very vulnerable.

READER'S PLATFORM

By MICHAEL BEADSMOORE

A San Jose, Calif., TV station, for example, reported recently that companies throughout Silicon Valley were calling the police bomb squad for tips on how to protect their computer rooms. And there is a new spate of coverage in the industry press, such as the *Computerworld* article — "Report says most damaged DP firms go broke" [CW, June 7, 1982] — on a study showing the severe effects on corporate survival of a catastrophic loss to a firm's data processing center.

Despite the new awareness of their vulnerability, U.S. enterprises still lag far behind their European counterparts in taking concrete measures for protection. Some years ago, Lloyds Bank Ltd. built a new head office building on the banks of the Thames River in London. The company's large computer was to be located in the basement, but, according to reports, the directors first commissioned an actuarial study to determine the likely risk of the computer room being flooded during high tides in the spring.

The results were surprising. The greatest risk to the bank came not from the threat of flooding, but rather from the possibility of terrorist bomb attack and the resulting loss of information. This despite Lloyd's highly regarded security measures. The bank afterward upgraded its disaster recovery capability, though it labeled the effort "contingency planning." As one Lloyd's official put it, "We don't have disasters; we plan for possible contingencies."

European firms have more experi-

See RECIPE page 18

Beadsmoore is senior vice-president at Masstor Systems Corp. and head of its disaster recovery group.

Changes in computer pros mirror changes in technology

My introduction to computer programming came in the mid-1960s on a time-sharing terminal connected to the Dartmouth College computer. My initial fascination with computers carried me through my formal introduction from a professor who stood at the front of a lecture hall and intoned that programming would involve much pain — staying up late at night to meet unreasonable deadlines with inadequate means. Many students never returned after the first class. Today they might make good microcomputer programmers, where computing is much more personal, responsive and pleasurable.

READER'S PLATFORM

By LINDA C. FREEMAN

But think of the people who stayed in that computer class. They expected computing to be one hardship after another. Then think of the different expectations of young people whose initial exposure to computing comes at home with the screen image displayed on the familiar TV. Clearly the so-called computer revolution requires a similar revolution in the kinds of people who work with the technology.

People who grew up with batch systems came to expect a computer culture with response time measured in hours or days. Often the effort (whether large or small) required much waiting and extreme patience.

In contrast, those coming of age with an on-line mainframe system come to expect relatively quick response times. They may be more willing to make mistakes — at least in entering the code — because they know the mistakes can be corrected easily, whereas a batch programmer has to be more meticulous about detail, because he or she might get just one run a night.

Today's microcomputer programmers expect even quicker response time plus independence from the processing needs of others. Response time can always be reliably gauged by the level of effort of one's own work. A short program will run faster than an equivalent long program because it is not stuck in a queue or waiting for an interrupt.

Batch programmers have to respond to a multitude of logical machine conditions, whereas programmers of interactive systems have to respond to the multitude of possible illogical human responses — such as

See CHANGES page 18

Freeman is a computer systems analyst at PERA SS, a government planning and engineering firm in Kittery, Maine.

Screen reflection: Its glaring effect on VDT operator performance

READER'S PLATFORM

By BILL GRENAWALT

In an earlier *Computerworld* article, Richard Koffler expressed doubts that glare could be a cause of VDT eyestrain and, consequently, that filters designed to screen for glare were actually helpful.

Mr. Koffler based his reasoning on a lack of scientific validation; however, anyone who has driven a car westward in the afternoon on a sunny day would feel strongly, I believe, that empirical validation, in this case, is more than sufficient.

In my work, I consistently hear complaints from computer operators about screen glare, which they associate with headaches, dry eyes, blurred vision, and so on.

Those complaints are identical to those expressed by respondents to a 1983 survey by Minolta Corp., a National Institute for Occupational Safety and Health study in 1981 and others. However, we do not have to depend only on personal experiences to accept that screen glare can, indeed, affect operator performance and well-being.

In a recent study, researchers in Physiological Optics and Computer Science at the University of California, Berkeley, demonstrated eye-blink rate as a measure of difficulty in reading a VDT screen.

The Berkeley group found that difficulty is inversely proportional to the number of eye blinks per minute. Adjusting for individual differences, the study established a blink rate of 15 per minute as normal for the viewing conditions of the study.

Blur or glare on the VDT screen reduced the rate to as low as nine. While blur must be corrected by internal adjustments to the computer, the use of an antireflective filter where glare was the problem enabled the researchers to bring blink rates up to within 95% of normal.

Two recent studies in which the Optical Coating Laboratory, Inc. participated also provide some very interesting statistics.

During the fall and winter of 1985, Strategic Information Research Corp. in New York conducted a comprehensive research project among VDT operators at the Optical Coating Laboratory's request.

The objectives of the project were threefold: first, to determine if a relationship existed between screen glare and the operator's office; next, to discover if a relationship existed between the incidence of a specific number of health conditions and use of a VDT; and finally, to examine the impact of panels specifically designed to reduce glare on a VDT screen.

The final report contained this observation: On a scale specifically constructed for the measurement of eye problems in this experiment, users of panels exhibited a greater decrease in average score than control group members.

This finding would seem to indicate that the participants in the test group experienced a genuine decrease in types and intensity of eye problems not attributable to the normal course of events.

The report stated: "Since the frequency of these problems among VDT users is directly correlated to interruptions in VDT use, productivity among VDT users will increase if the ... panel is introduced. This is the most significant conclusion drawn from the evidence of this study."

Grenawalt is ergonomics program director for Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Recipe for DP disaster

From page 17

ence at disaster recovery planning than U.S. companies, of course, because social and political conditions on the Continent demand it of them. Terrorism has unfortunately been a fact of European life for many years.

Another factor is that European governments have been more willing to intervene and regulate business in which they thought that the social good was at stake. Hence the emergence across Europe of various types of data privacy legislation, which in part obligates companies holding data on citizens to safeguard that information from loss as well as misuse.

A few years ago, the Swedish government surveyed top firms as to how they would fare in the event of a loss of their main information processing resources.

The results were nothing short of shocking: Barely 15% of the companies queried would be able to survive a disaster to their computer centers.

Since that survey, the government has promulgated a legal requirement that all Swedish companies must take concrete measures to protect the information resources in their charge.

Regardless of nationality, location (astride a major earthquake fault, for example) or the political climate in which they operate, all companies clearly face some risk for either a natural or man-made disaster.

Not surprisingly, companies that deal directly with the public have invested a significantly higher dollar amount in protecting their corporate information than have companies engaged, for example, in scientific research or manufacturing.

But, in either case, few companies can say (with any confidence) that the records, transactions, investment portfolios and other corporate information necessary for day-to-day operation would survive a major disaster. For years, corporate America has stuck its collective head in the sand rather than develop truly effective disaster-recovery planning and capability. Now it is catch-up time.

Changes in computer pros

From page 17

pressing the wrong PF-key. Programmers of expert systems need to comprehend human response plus human thought. They need the ability to analyze complex thought processes and describe them as a set of changeable rules.

A fourth-generation programmer needs to rely on memory less than a Cobol programmer because the work is more modular and usually prompted. Long-winded Cobol can be far more mnemonic than Fortran, Basic or assembler, since one does not have to express things in eight or fewer characters.

A fourth-generation programmer can get by knowing little hexadecimal or octal notation and almost no hexadecimal or octal calculation — mathematical abilities once required for all programmers but now mostly for systems work.

Likewise, memory addresses, once vital information to a programmer, are handled by operating systems and the physical design of a data base.

There may be less mathematics involved in fourth-generation programming, yet working in a network data base requires the ability to visualize to a far greater extent than when working with flat files or two-dimensional arrays.

Communications requires people who can function in the world of protocol — the give and take of formal two-party communication. They have to be able to respond to this technical handshaking as in a verbal call and response sequence.

Networks require the same skills plus the ability to function in a hierarchy of organized interaction — passing information across peer levels as well as up and down the organization chart.

Sharing vs. security

Networks also require people who can be simultaneously concerned about the diametrically opposite worlds of sharing and security. They need to understand that neither sharing nor security is an absolute good or bad.

Programming languages have nearly eliminated required row and column entry, leaving only vestiges of the accounting school theory of computing. Most software houses know that it is just as easy (and usually easier) to program for flexible column entry as for fixed format.

As the computer culture evolves, it requires people with new outlooks on work, people who can get satisfaction from new types of work. It also requires the wisdom of seasoned professionals who can adapt to the changes in their work brought about by the changes in technology.

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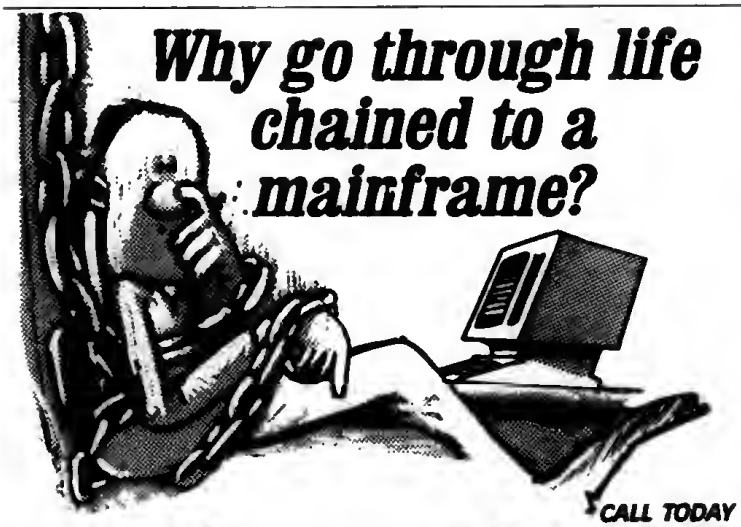

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SOFTWARE & SERVICES

SOFTALK
Charles Babcock

Imaginative price structures

In a recently released study, market research firm Input, Inc. highlights the reasons why price discounting in software is shortsighted. After eroding profit margins in the hard times, this practice makes it tougher to collect standard prices in the good times, the study says (see story at right).

The study doesn't say exactly which or how many of the software companies engage in discounting, but it seems clear from the results cited that discounting takes place during an industry downturn and is most prevalent wherever the competition is fiercest. In 1985, those areas included accounting software, manufacturing software geared to specific markets and data base management systems.

Discounting is really just one aspect of a business outlook that puts maximum emphasis on achieving quarterly results. A company discounts its products in part to maintain market share and also to show revenue on paper. Questions about the quality of that business — whether it represents a profitable deal — can be deferred beyond the scope of one quarter and therefore may not be raised.

The Input study concludes that software vendors should be more innovative in their pricing and consider short-term leases, which have lower initial costs. In doing so, they have to forego the cash-flow benefits of a lump sum payment when a permanent license is purchased.

This is not a new idea to Information

See IMAGINATIVE page 22

Babcock is Computerworld's senior editor, software & services.

Discounts hurt in long run

Study says performance more important to users

By Charles Babcock

Discounting as a response to temporary market pressures is bringing more drawbacks than advantages to software vendors, warns a study on trends in software product pricing.

The software companies' willingness to discount is eroding their profit margins, image and ability to survive future market downturns, according to the study from Input, Inc., a computer and communications market research firm based in Mountain View, Calif.

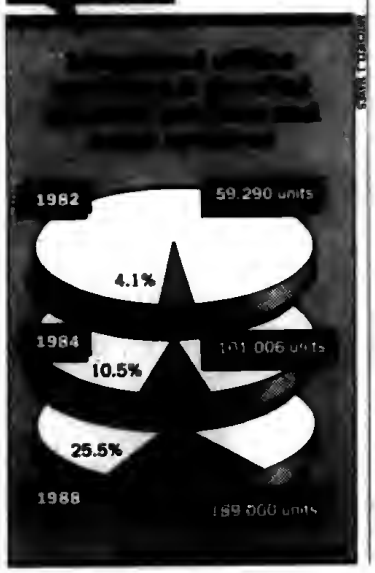
"Accounting software underwent some extremely aggressive discounting recently," notes Jack Keen, Input principal staff consultant, who compiled the data for the study in the second half of 1985. Prices declined less than might be expected because of added functionality in accounting products. In less volatile times, the enhancements "would have supported far greater levels of price increases" than they did in 1985, Keen explains in the report.

Manufacturing software aimed at vertical markets "showed the most softness during this period, mainly due to the aggressive actions of larger vendors who responded to greatly increased competition by implementing larger than usual discounts," the study says.

Increased competition to sell data base management systems is causing the basic DBMS packages "to evolve to more of a commodity image," the study declares.

An offshoot of a market that produces discounting is a slowdown in price increases. Software prices increased an av-

See DISCOUNTS page 24



Tool uploads Micro CICS

By Jeffry Beeler

LOS ANGELES — Unicorn Systems Corp. has teamed up with a Connecticut OEM to put Micro CICS on a minicomputer with a VM/CMS-compatible operating system.

The agreement between Unicorn and Canaan Computer Corp. of Trumbull, Conn., will allow mainframe CICS applications development, testing and debugging to be offloaded to a 32-bit superminicomputer, Canaan's DCS 5800.

Both Canaan and Unicorn are training their sights on data centers that run CICS under MVS or DOS. A typical MVS or DOS shop divides its mainframe system into multiple CICS regions, some dedicated to program development or testing and others to production jobs.

However, because most businesses give preference to production, "development and testing are often interfered with or degraded," according to Forecross Corp.

See TOOL page 24

INSIDE

Cincom Systems announces its Ultra Interactive Database System for the DEC VAX line/22

NEW THIS WEEK

- Hewlett-Packard introduces HP Teamwork/Structured Analysis software for software engineers

For more on this and other new products, see pp. 77-87.

INSTANT ANALYSIS

"On balance, I don't see Oracle or Ingres having any performance advantage. Each has certain areas where it does better than the other."

— Greg Pavlov, executive director, Frontier Science & Technology Research Foundation, an Ingres user, on the Oracle Corp. vs. Relational Technology, Inc. DBMS performance debate

ORACLE WINS THE 1985 DATABASE DERBY

The 1985 Database Derby pitted the world's leading DBMS companies against one another in Chicago.

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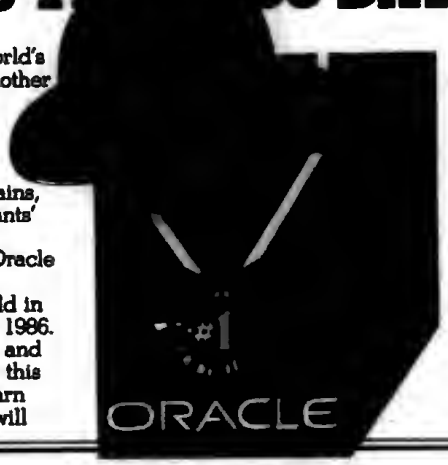
The second Database Derby will be held in San Francisco during the month of August, 1986. We look forward to seeing Cullinet, ADR and the rest of the database thoroughbreds in this year's run for the roses. But we should warn them that our gold medal team for 1986 will again include the cream of the ORACLE National Consulting Service organization.



If you'd like to know more about the Database Derby, and how ORACLE wound up in the winner's circle, join us for a free half-day seminar at a city near you. Call 1-800-345-DBMS, or write Oracle Corporation, 20 Davis Drive, Belmont, CA 94002.

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Cincom releases interactive DBMS for VAX

Includes upgraded query and reporting system

CINCINNATI — A relational data base management system for the Digital Equipment Corp. VAX line of computers has been given an enhanced, interactive query and reporting system in its latest release.

Release 1.4 of the Ultra Interactive Database System is available from Cincom Systems, Inc. of Cincinnati at prices ranging from $20,000 to $99,000, depending on environment.

The system is designed to utilize the multiple machine, multiple application environment of major VAX users, Cincom spokesmen said.

The query and reporting system, dubbed Spectra, allows users to retrieve and update information stored in an Ultra data base or in a personal file system that is maintained apart from the central data base, according to company spokesmen.

Tutorial facilities

The system also provides tutorial and Help facilities, with Edit and Browse commands to ease reporting tasks for end users.

The DBMS also includes a screen forms facility to aid in the design, test and storage of screen forms. Called Ultra-Scope, its run-time system automatically validates data, eliminating the need to do so through conventional methods, company officials said.

The physical data manager in Ultra-Scope now operates in a clustered VAX environment, allowing users on different VAXs to share data in one DBMS, spokesmen said.

Under the new release, users may mix physical files and indexed sequential files and access them through the DBMS' Relational Data Management Language.

In addition, company spokesmen said, Ultra includes a Basic language preprocessor as well as supporting Cobol, Fortran and Mantis, Cincom's fourth-generation language.

Chances are you don't currently audit your operating system—even though it's ultimately in control of information used to manage your organization. And for good reason.

For the most part, you don't audit the system because the software is just too complex. Then too, certain hard data on system controls is usually unavailable. And a manual review would take weeks to perform, require outside experts, and cost too much.

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AEX2-Examine/MVS software also helps your DP staff become more productive by improving their knowledge of the system, its controls, and its level of operating efficiency. In effect, it puts MVS under a cost-conscious microscope.

Tighter business controls, more accurate information and improved data center productivity are all key management objectives for the coming decade. AEX2-Examine/MVS software provides a tool to help you achieve these strategic objectives *today*. And positions you to meet your increasingly stringent demand for due care in the future.

For more information, contact Shawn McLaren today, at 1333 Lawrence Expressway, Santa Clara, CA 95051-3595, (415) 941-4558. Telex 357437.
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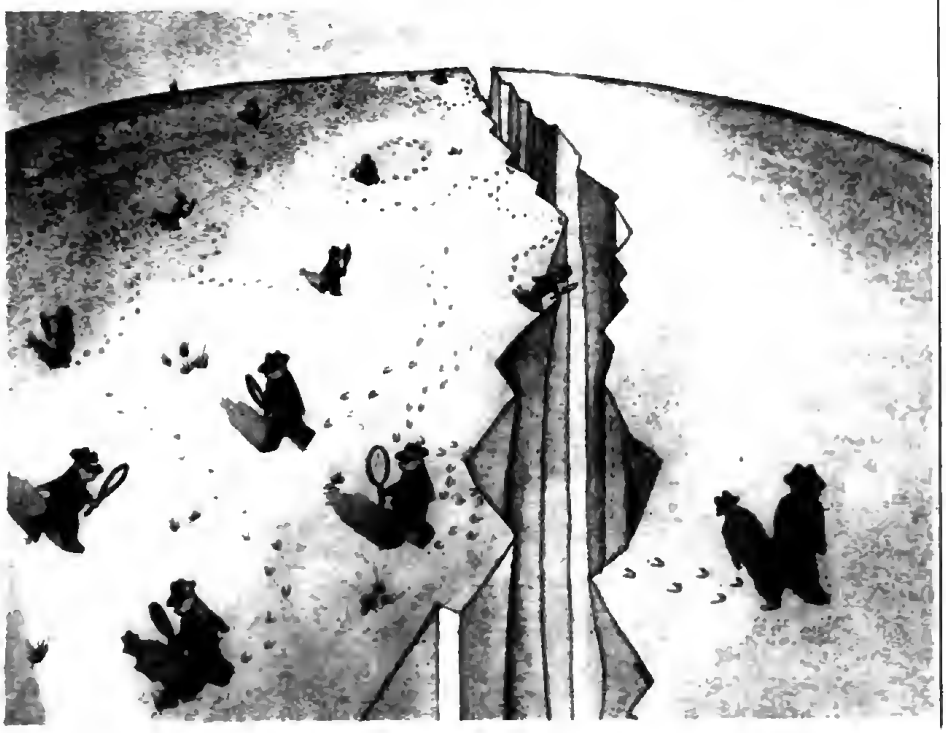

Imaginative price structures

From page 19

Builders, Inc. of New York, whose sales have been 80% via leases over the 10-year life of Focus, its principal product. Verne Scheidler, Information Builders spokesman, is fond of saying some customers have paid for Focus several times over because they prefer lease arrangements.

Given the fact that Focus is an information center-oriented product, it is not surprising that many companies have decided to add the new service to their DP budget via the smaller initial cost of a lease.

Another company for which leasing is a hefty part of business is Cincom Systems, Inc., a systems and applications house. Its president, Dennis Yablonsky, says Cincom realizes about 23% of its revenue from software leases. When combined with maintenance revenue, the company receives about 40% of its revenue in recurring form, a fact that helps the company weather economic downturns, he says.

It's worth noting that both Information Builders and Cincom are privately held, which frees them from the pressure of quarterly results.

Escaped Wall Street scrutiny

Another company that more recently escaped the quarterly scrutiny of Wall Street is Applied Data Research, Inc. (ADR), now part of Ameritech.

President Martin Goetz says ADR has implemented a 20% reduction in short-term lease prices and now offers a month-by-month lease. The hazard of such brief leases, according to Goetz, is that a customer is free to discontinue his use of an ADR product on short notice and go with a competitor's. But many customers "like the comfort of not being locked into a product," which helps make the sale, Goetz says.

"Most companies underestimate how long they will use a product. Over the long haul, we think it will bring us more revenue," he says. ADR would like to see this side of its business grow from 15% to 25%.

There is little reason — other than, "We've never done it that way" — for software companies to avoid consideration of more flexible pricing schemes than the lump sum, permanent license, the Input study implies.

"Top management preoccupied with many other business issues, often drags its feet when asked to approve additional resource time to review pricing structures more than once annually," the study says.

Pricing is complex and "often demands market information which is either nonexistent or sketchy at best." Faced with the possibility that it has set prices too high, management reverses itself in a competitive situation and begins discounting, which attracts unprofitable business.

Although discounting will always play a role in competitive situations, the company that can enforce its pricing policy is a more viable one than the company forced to constantly discount. Discounting should be approached "with extreme reverence and caution," the study concludes.

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Discounts hurt in long run

From page 19

erage of 4% in 1983; by mid-1985 the rate had dropped to 2%, the study says.

The sensitivity of prices to market conditions in part is a self-imposed Achilles' heel of the industry, the study implies. Most buyers rank price at the bottom of their list of reasons why they make a particular purchase. Near the top are such reasons as "performance," "features" and "ease of use."

This mismatch of vendor vs. buyer perceptions is borne out in other areas. While vendors perceive their own financial stability to be a major selling point, buyers tend to view it as a secondary issue to performance, the study says.

The study notes that software pricing is too tradition-bound. It is viewed as "a once-a-year phenomenon, usually set to coincide with the budgeting cycle rather than market developments."

To make pricing a part of marketing strategy, software companies need to review prices at least once every four months and tie them to changes in the marketplace, the study says.

A major opportunity to win sales through pricing is the creation of "low entry" costs for buyers. The study states that low-entry offerings could include more attractive lease or rental plans or flexible usage pricing. For many software companies, however, current financial strategy rules over marketing, and that strategy seeks a lump sum payment upon purchase. The lump sum approach "results in immediate cash" and "generates impressive revenue and profit growth curves," benefits that in some instances "become highly addictive," the study continues.

In addition to low-entry offerings, vendors should consider regular price increases. "Price increases in the range of 3% to 6% may, in many cases, be made almost immediately since buyers generally expect this type of occurrence."

The study also recommends that annual support prices equal 12% of the lump sum price. The study was based on personal interviews with 26 information system managers and 678 telephone interviews with information system managers of mainframe and minicomputer systems.

Tool uploads Micro CICS

From page 22

President Kim Jones, whose San Francisco-based firm uses Micro CICS to produce commercial software.

With the Canaan-Unicorn combination, however, the CICS regions reserved for development can be migrated from a mainframe to the DCS 5800, which supports up to 36 users. Introduced early this year, the DCS 5800 executes 500,000 instructions per second and runs Canaan's VM/CMS-compatible operating system, Canaan officials said.

The ability to remove development tasks from a mainframe ensures increased control over in-house programming efforts for MIS departments, according to Irene Nesbit of Nesbit Systems, Inc., a Princeton, N.J., consulting firm. In addition, disk storage and machine cycles cost less for a minicomputer than for a mainframe, she said.

The offloading of CICS programming and testing domains to a dedicated processor also lowers response times and improves development productivity by an average of 50%, claimed Michael Scroggie, Unicorn's president.

After a CICS application has been created, tested, debugged and compiled on a DCS 5800, the finished source code can be ported to a central IBM host for execution and production.

The uploading is made possible through Multigate, a family of system utilities that comes with the Canaan CPU, Canaan officials said.

The Unicorn development environment has also been available on IBM's Personal Computer/370 since Micro CICS was introduced last year.

Micro CICS, which supports VSAM and includes integrated testing and debugging aids, is available on the Canaan machine for a $16,500 license. A 2M-byte, 12-user DCS 5800 retails for $62,800.

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Now you can use virtually any asynchronous printer any place you can plug in an IBM 3287...

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SYSTEMS & PERIPHERALS

HARD TALK
Peter Cooperstein

Plan now for tax reform

Like it or not, data processing managers must accept the fact that the investment tax credit will almost certainly be taken away — retroactive to Jan. 1, 1986.

Although we do not yet know every detail the final tax reform legislation will include, lawmakers in both the U.S. House and Senate seem to agree that removing the investment tax credit will be necessary to help compensate for lost revenue from lowered individual and corporate tax rates.

If the DP manager has not already begun altering his course to accommodate the loss of the tax credit, it is time to do so.

Investment tax credit-lessor leases are ones in which the lessee passes the available tax credit to the leasing company to obtain lower rates than otherwise available. The great majority of such leases signed so far this year state that if the tax credit is retracted, the user's lease payments will be increased. While there's no use in crying over these deals now, managers can begin budgeting for these adjustments.

With the repeal of the investment tax credit, rates on tax credit-lessor leases will be increased any way. And although this point will surprise many lessees, the rates will end up higher than if these transactions were originally tax credit-lessee leases — leases that allow the lessee to keep the tax credit, if available. The reason is that

See **PLAN** page 32

Cooperstein is vice-president of marketing for Western Marketing and Financial Corp., a San Rafael, Calif.-based leasing and brokerage firm.

Bringing 'down' a system

Raising too many tiles can cause crashes, readers warn

By Donna Raimondi

The ancient Chinese proverb that one picture is worth a thousand words proved all too true when *Computerworld* recently ran a CW Exclusive story about environmental problems encountered in computer rooms.

The story, "Head crashes: MIS seeks aid for sensitive disk drive problems" (CW, June 2), has resulted in a debate about proper methods of cleaning computer rooms. A number of callers, while generally having no problem with the article itself, were up in arms over the accompanying photograph (page 31).

The article related the experiences of several MIS managers who had improved the performance of their thin-film disk drives by cleaning their computer rooms. The photo in question shows a computer room floor with about 30 tiles raised off their supporting pedestals.

Some callers said that one should never lift more than two tiles at any one time. They maintained that the system could crash — as in physically crash through the weakened floor — or crash — as in fail because of dust pollution. But others said that there is no problem with lifting a row or two of the tiles.

The consensus of opinion seemed to be that managers who are planning to have work done in their computer rooms should pay attention to the fact that, at least under some conditions, it may be hazardous to the system to raise too many tiles.

"If you raise a lot of tiles, believe me, you are asking for problems of the first order. It's stupid to do that," said David Langley, president of Air Tech International, Inc. in Jacksonville, Fla., a firm that analyzes computer room air contamination. Tiles should be lifted in checkerboard fashion, Langley claimed, and not more than three or four at a time. When too many tiles are lifted, computer room

See **BRINGING** page 31

Start-up offers 40-bit AI processor

By James Connolly

ANAHEIM, Calif. — A 14-month-old start-up company plans to introduce its first product, a 40-bit symbolic processor pitted against artificial intelligence systems from Symbolics, Inc., Texas Instruments, Inc. and Lisp Machine, Inc.

Integrated Inference Machines, Inc. (IIM) reportedly plans to announce its SM45000 system at the Fifth National Conference on Artificial Intelligence in Philadelphia on Aug. 11.

IIM officials claimed a prototype SM45000 out-performed Symbolics' 3600 series systems by a 5 to 1 ratio in early benchmark tests. The SM45000 is priced from $39,000 to $44,500 and is scheduled to be available in October. "The speed will really show up when you enlarge the system," said IIM Vice-President for Engineering James Hino, who emphasized that one strength of the SM45000 is its flexibility and expandability. At present, it is intended for use by software developers and in large user companies that are developing their own AI systems, such as university researchers and government research and development laboratories.

The system is based on a proprietary custom 40-bit pipelined symbolic processor. It runs an extended superset of full Common LISP and supports peripherals and networking through an Intel Corp. 80286-based I/O processor that runs Microsoft Corp. MS-DOS and is also compatible with IBM Personal Computer software.

The SM45000 has the potential to address up to 20G bytes of storage, although the initial version will include up to 240M bytes of Winchester disk storage. Minimum memory is 10M bytes. Additional memory can be installed in 12 expansion slots in 10M- and 20M-byte increments to a maximum of 240M bytes. Hino also said that up to 1.2M bytes of no-wait-state ran-

See **START-UP** page 32

INSIDE

Intergraph announces a Fairchild Clipper-based workstation/**30**

Burroughs offers an uninterruptible power supply/**32**

Optical memory card technology shows market gains/**32**

NEW THIS WEEK

- Informer Computer Terminal offers a color portable workstation

For more on this and other new products, see pp. 77-87.

INSTANT ANALYSIS

"Mainframe growth can and will return, but only when progress in software development and technology assimilation lowers the real cost of implementing effective end-user systems."

— International Data Corp. report on the mainframe market

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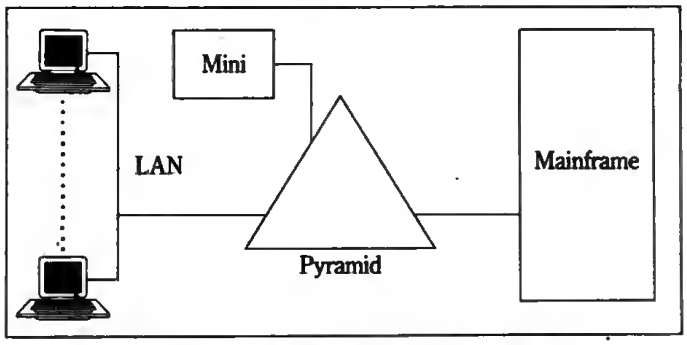

It's clear that connectivity is the answer. But it's also clear that just connecting computers isn't enough. They have to be able to communicate throughout your system in an open, unobstructed way. That's the kind of connectivity a Pyramid supermini can give you.

With a Pyramid opening your system, the most powerful computers can talk with the most personal. That's because our family of superminis is built on industry standards, like UNIX.®

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As a result, our open systems provide the key to connectivity.

And unlike proprietary systems that solve problems now, only to create problems later, the future of your system isn't at risk. You're not locked in. And your possibilities aren't ruled out.

As attractive as all that sounds, we know it's not enough. Because no matter how open a system is, it still has to perform.

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This combination of features and openness makes our systems ideally suited for three important applications: As data base servers, pc/workstation servers, or software development environments. We'll talk about each one of these applications at length in a series of advertisements.

In the meantime, to learn more about Pyramid systems and the company behind them, contact us at 1295 Charleston Road, P.O. Box 7295, Mountain View, CA 94039-7295. Or call 1-415-965-7200, Ext. 3450.

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The Shape of Performance.

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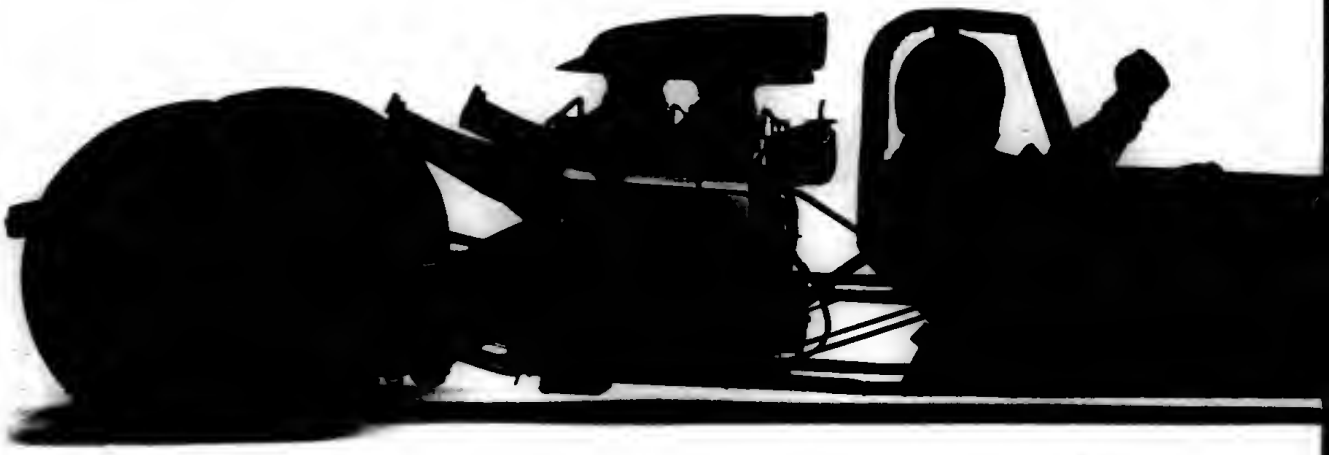
GUESS WHO WINS THE DATA BASE RACE?



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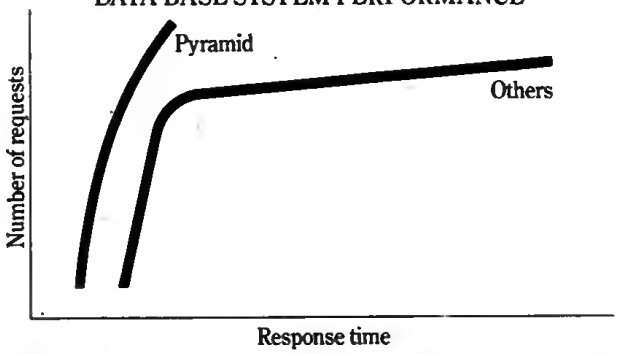
What it doesn't tell is why. So hold onto your hat.

DATA BASE SYSTEM PERFORMANCE



Other superminis have a very pronounced "knee" in their curve. That's where their I/O subsystems hit the wall. But not Pyramid. Thanks to our distributed processor architecture, we deliver crowd-pleasing performance. For as little as 2/3 the cost of our competitors' systems.

Smooth data base management requires high *aggregate* throughput. So you need MIPS, but you also need performance from every other part of your system, too. And that's why Pyramid comes in first.

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And our XTEND™ bus is the ultimate in handling. With an advanced cacheing scheme and a message-based, 40 Mb/S bandwidth, it's no wonder.

But performance isn't the only thing we offer.

There's comfort, too.

Yours.

We have strong relationships with every major relational data base manufacturer. So not only will you have a choice of what to run, you'll get support from both us and them. No matter who "them" is.

And since Pyramid systems are open systems, built on widely-supported industry standards, we can give you more different ways to go. Without locking you in. Or locking your other suppliers out. Chances are, they support the same standards. Like UNIX,* for instance.

It's that wide openness that'll have everybody cheering, including you, because a Pyramid can give more people more data base access. From individual users on pc's, workstations or terminals, to departmental micros and super-minis, to mainframes running batch, transaction processing, or scientific applications.

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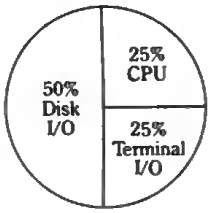
While raw MIPS are important to a data base system's performance, the system still spends most of its time on terminal and disk I/O. That's why we use multiple distributed processors. They put the computing power where you need it. So you're not sitting there spinning your wheels.



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Arete processor boosts Series 1000 capacity

By Donna Raimondi

SAN JOSE, Calif. — Arete Systems Corp. has released a modular I/O processor that almost trebles the number of users supported by its Series 1000 multiprocessor minicomputer.

The Modular Communications Processor (MCP) allows the Series 1000 transaction processing systems to support as many as 256 remote users, an increase from the previous maximum of 88 users.

The product also eliminates some of the wiring, cabling and termination problems of adding users or moving users around in a building, product manager Richard Hafner said. Instead of terminating each connection in the host cabinet, clusters of users can now be connected to an MCP, which is wired to the host with one cable. Multiple MCPs can be stationed throughout the building.

MCPs can connect to multiple Arete hosts or to other MCPs so that remote terminals, modems and printers can be attached.

The MCP is a free-standing unit that allows the linking of up to eight data communications processors located in the Series 1000 computers. A user needs a data communications processor for each 32 users on the system but only one MCP to link the maximum of 256 users.

Software included with the MCP allows customers to define user configurations and monitor communications for tracing and statistical reporting. The MCP transmits asynchronous data at up to 19.2K bit/sec. and synchronous data at up to 64K bit/sec.

The MCP is available as an upgrade to existing Arete Series 1000 systems for $38,000. Typical configurations, with tape and disk drives, that come with the MCP option support from 64 to 256 users and cost from $57,500 to $250,000.

A configuration with 64 users may or may not need an MCP, said James Bourgeois, director of marketing at Arete. If the system is growing rapidly and is expected to reach the limit of 88 users fairly soon, it would be worthwhile to buy the MCP, he said.

Intergraph unveils color workstations

By Rosemary Hamilton

LAS VEGAS — Intergraph Corp. last week unveiled two color workstations — the first systems to be introduced that use the Fairchild Camera and Instrument Corp. Clipper 32-bit microprocessor — at the Design Automation Conference.

The Interact 32C and the Interpro 32C, which reportedly operate at 5 million instructions per second (MIPS), are the second generation of workstations for Intergraph. The Huntsville, Ala.-based computer-aided design/manufacturing vendor reportedly is the No. 2 CAD/CAM vendor in terms of revenue and market share. It has marketed large systems based on Digital Equipment Corp. hardware since the early 1970s.

The Interpro 32C is a desktop unit designed for the technical professional, and it will sell for $25,000. The $40,000 Interact 32C is based on the same hardware, although it comes with a large, dual-screen display station and digitizing tablet because it is intended for design-intensive applications. Both systems are scheduled for shipment in October.

> ***'Intergraph Corp. had decided to change its Unix engine as soon as a more powerful processor was made available.'***
>
> — Thomas Miller
> Fairchild Camera and Instrument Corp.

The original Interpro 32, based on the National Semiconductor Corp. 32032 microprocessor, was quietly introduced in late 1984. It was Intergraph's first departure from the DEC platform, and it has not gained a significant share in the engineering workstation market, noted Charles Foundyller, president of Daratech, Inc., a CAD/CAM market research firm in Cambridge, Mass.

The Clipper-based systems will be shipped with the recently introduced AT&T Unix System V, Release 3.0 although they ran System V Release 2 when demonstrated last week.

Intergraph is the first vendor to announce a system based on the Clipper chip, which will be shipping in limited quantities this summer and is scheduled for volume shipment in the fourth quarter.

The Clipper offers five times the performance of a DEC VAX-11/780, which has a 1-MIPS rating, according to Fairchild. Clipper marks Fairchild's entry into the 32-bit CMOS microprocessor market, and it will compete against more firmly established 32-bit offerings from Motorola Corp. and National Semiconductor as well as the as-yet-undelivered 32-bit 80386 chip from Intel Corp.

Although built around a new chip,

See INTERGRAPH page 32

Bringing the system 'down'

From page 25

air flow is interrupted, spewing "junk" into the air and into the equipment. The stability of the floor is also jeopardized, he added.

"It is never recommended to remove more than two or three floor tiles at a time," said Tom Desantis, branch manager of Data Supply, Inc. in Hialeah, Fla., a company that distributes business forms and office supplies, including computer room floors.

"Computer room floors give good support downward but not from side to side," Desantis continued. "If you have five tons of equipment and you lift that many tiles off the floor, especially toward the center of the room, the pedestals can tip."

But Tom Bougie, regional sales manager for C-Tec, Inc., a Grand Rapids, Mich., manufacturer of raised computer floors, did not agree. "In order for the floor to fail, there would have to be a rolling load in the direction of the raised tiles," he said. A rolling load is equipment on wheels that is pushed around the room.

Computer room floors are made to hold a static, or nonmoving, load, Bougie said. And if the computer room has stringers — metal channels for stability that run from pedestal to pedestal and that the tiles sit in — even a rolling load would not be a problem. Stringers are commonly used in floors raised more than 18 in. and in many floors raised over 12 in., he said.

Al Faber, director of computer operations at the Dade County School Computer Center in Miami, has had rolling loads fall through his floor even when tiles were not raised. "We were hauling things on a skid, and the skid went through," he said. "If you set things at an angle on the tiles, they will fall through. We have taken as many as 12 tiles off at a time. It gets very dangerous, especially if you lift the stringers up too, like to lay cable."

> ***'The major problem is when you lift more than two tiles, you have broken the integration of the floor, and it could collapse or shift.'***
>
> — Mark Sher
> Compuclean International, Inc.

Mark Sher, president of Compuclean International, Inc. of Coral Gables and Tampa, Fla., said, "Raised floors were designed to hold the weight of the equipment." Sher, whose firm monitors and cleans computer rooms and ensures a proper environment for equipment, added, "The major problem is when you lift more than two tiles, you have broken the integration of the floor, and it could collapse or shift." Another problem, Sher said, is that the cooling system could be disabled because the tiles have holes or vents that help circulate the cooling air.

But Storm Larkins, president of Winton Laboratories, Inc. of Los Angeles, the company that was featured in the controversial *Computerworld* article, said his company routinely lifts numerous floor tiles and that he has never had a problem doing so. "We have never even had a complaint or a comment about this, and we use that picture in our sales brochure all the time," he added.

Desantis said he knows about shifting floors from experience. When he was DP manager of Traveler's Express Co., a New Jersey firm that has since been bought by Greyhound and moved, electricians pulled out a row of panels and the computer system fell through the floor. But, Desantis said, that was about 25 years ago, and the floor tiles were made of plywood. He said he does hear about plunging computer equipment from time to time, however, maybe twice in the past few years.

Desantis and Sher both pointed out that floor tiles go in only one place and must also be replaced in the right direction. "There is no such thing as a perfect panel," Desantis said. "You have to level new floors and adjust all the pedestals that the tiles sit on. So each panel has to go back where it came from and in the same position, or it will rock back and forth."

That rocking motion, according to Sher, can cause minute fragments of the aluminum floor structure to settle onto the subfloor. The particles can subsequently blow through the air-conditioning system and lodge in parts of the computer system, creating anything from a nuisance to equipment failure, depending upon where they land.

This photograph of lifted floor tiles during computer room maintenance work sparked safety debates.

And it was precisely the threat of equipment failure that led *Computerworld* in the first place to run the June 2 article and accompanying photo that some thought shows an environment ripe for a crash — as in equipment physically falling through the floor or becoming polluted by dust to the point of failure.

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Lasercard industry gets boost

Vendors show optical memory card products

By Donna Raimondi

Optical memory card technology, in which a laser records financial, security or other data on a card, has been boosted by four vendors who have licensed the technology.

The technology, pioneered by semiconductor component manufacturer Drexler Technology Corp. of Mountain View, Calif., was developed and patented by Jerome Drexler in 1981. It was licensed to four firms that have publicly demonstrated the read/write equipment they developed for the card.

Toshiba Corp., Nipponcoinco Co. and Matsushita Electric Industrial Co. all showed read/write products in Japan this year. Canon, Inc. demonstrated its read/write products at the Hannover Fair in West Germany.

The Drexler Lasercard optical memory cards use a laser light source by which data converted into digital signals is written into and read out of a special data storage stripe sealed inside the cards. Two million alphabetical characters (the equivalent of about 800 sheets of A4-size paper) can be stored on one card. This is in contrast to 72 characters commonly stored on magnetic strip cards and 8,000 characters that can be written to integrated circuit cards. Once the data has been written in, it cannot be erased.

With the optical cards, data is input via laser beams that punch microscopic holes in a silver layer inside the card.

Trials of an application for the optical card system will be carried out in a Japanese bank this summer. The experiment will allow about 100 employees in a Tokyo main office to do cashless shopping in the bank's dining room and snack shop as long as they do not exceed specified limits prestored in the cards. The cards will memorize deposits and withdrawals of funds, like an electronic checking account, Drexler spokeswoman Johanna Protsik said. Settlements will be processed once a month.

If all goes well after the six-month trial, the Tokyo bank will extend the experiment to consumers. New functions will be added, such as incorporating individual assets- and document-management functions and telephone card functions. The latter will be done in collaboration with Nippon Telegraph and Telephone Corp. The cards will also be used as identification cards since they can use image processing to store photographs and fingerprint data.

There are prototype systems working, Protsik added, but there is not yet enough equipment to set up a large operation. "We have talked to seven or eight thousand companies, and the interest is phenomenal."

Burroughs uninterruptible power supply system fits in computer room

By James Connolly

DETROIT — Burroughs Corp. has introduced an uninterruptible power supply system designed to save space by being small enough to fit inside a computer room.

The UP 6000 was designed to protect large and medium-size computers, such as the Burroughs V series and A series systems, from erratic or interrupted utility power.

It has a minimum capacity of 60 kW and can be upgraded in the field to a 100-kW capacity.

"The power range, ease of upgrade, compact size and other state-of-the-art features make the UP 6000 unique among similar capacity uninterruptible power systems in the market," said Conrad Strelau, Burroughs vice-president of field engineering.

According to Strelau, the uninterruptible power supply system, including battery backup, is compact enough to be installed in the computer room, rather than requiring separate space.

Prices for the UP 6000 start at $60,000.

Start-up offers 40-bit processor

From page 25

dom-access memory (RAM) can be configured for each 20M bytes of standard RAM.

The Common LISP extensions include graphics, random-access file structure and support for a mouse, pull-down menus and windows.

The standard graphics display is a 1,280- by 800-pixel bit-mapped graphics display. A 640- by 400-pixel color display is optional.

Company officials said symbolic processors can be used to support robotics and certain computer-aided design and manufacturing systems.

Integraph unveils workstations

From page 30

the new workstations have the same basic configuration as the National Semiconductor 32032-based Intergraph systems, which can be upgraded by means of a board swap.

The original Interpro 32 workstation, whose price Intergraph recently cut by $5,000 to $15,000, was constructed with separate I/O and display station processors. Those processors remain the same in the new systems.

The I/O processor is based on an Intel Corp. 80186 chip and has 512K bytes of local memory. In addition to controlling all the I/O and systems diagnostic functions, it also supports IBM PC-DOS-based operations, allowing users to run such popular micro programs as Lotus Development Corp.'s 1-2-3. This processor also controls the communications between the Interpro or Interact 32C and other devices on an Ethernet network.

The display station processor, proprietary hardware called the Raster Operations Processor, executes graphics commands and display operations such as windowing and vector and raster generation.

"Two years ago, National was the right choice," said Bruce Imsand, vice-president of systems development with Intergraph. "But we set it up as an independent processor in case we wanted to change."

Thomas Miller, a marketing manager with Fairchild, added, "Intergraph had decided to change its Unix engine as soon as a more powerful processor was made available."

Both the Interpro and Interact 32C come with 6M bytes of main memory, an 80M-byte disk drive and a 1.2M-byte floppy disk drive. A 15-in. color monitor with 1,184- by 884-pixel resolution comes with the system although a 19-in. version with the same resolution is also offered.

The entry-level systems include screen management software, as well as DEC VT110 and VT200 emulation and Interact terminal emulation software.

The Intergraph Network Core software, Graphical Kernel System routines and an Ethernet network connection are also standard.

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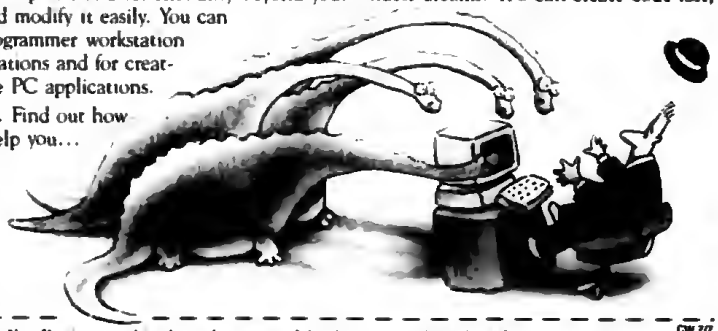

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Plan now for tax reform legslation

From page 25

investors in investment tax credit-lessor leases are primarily after the tax shelter benefits of the investment tax credit, and they do not value the depreciation benefits or the equipment's expected residual value as highly as tax credit-lessee investors do.

Incidentally, a leasing company that offers both tax credit-lessor and tax credit-lessee rates is often representing these two very different types of investors. One conclusion: recognize that times have changed and stay away from investment tax credit-lessor leases.

Investment tax credit-qualifying corporations either have had an appetite for the tax credit or have taken advantage of the tax credit by obtaining lower lease rates via tax credit-lessor leases. Now, users should rethink the new vs. used argument: The retraction of the investment tax credit means used equipment now becomes more valuable.

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Elisabeth Horwitt

Take T1 wheel from vendors

The article on T1 code mix-ups, "Code snafu threatens T1 private nets" [CW, June 30], is a strong argument for users to take control of their T1 networks rather than leave it to the regional holding company to make sure nothing goes wrong.

Briefly, that article discusses an equipment glitch that sometimes causes a private T1 line to get stuck in diagnostic loopback mode. When this happens, the line is out of commission until someone sends an engineer out to the site to fix the problem.

The most sinister aspect of the whole thing is the essential helplessness of the user. I'm not talking about Fortune 500 corporations with huge private telecommunications networks tended by expert technicians. They can take care of themselves. I mean the smaller firms that just recently started leasing a few T1 lines, primarily to save money on phone bills and to hook up a couple of remote sites to the corporate IBM mainframe.

These companies can't afford separate telecommunications departments; they settle for having an MIS manager oversee the installation in order to learn the basics of T1 networking and to keep track of operations on an ongoing basis.

Small blame to this guy if, when something goes wrong with his network, his first move is to send out a distress call to the local carrier. The carrier will undoubtedly fix the problem and take steps to ensure that it

See TAKE page 43

Horwitt is Computerworld's senior editor, communications.

Banyan enters low-end mart

Adds IBM net servers, inks OEM pact with Tallgrass

By Alan Alper

NEW YORK — Launching its first assault on the low-end networking market, Banyan Systems, Inc. recently added two new members to its family of IBM Personal Computer network servers and signed an OEM agreement with Tallgrass Technologies Corp. The agreement licenses Tallgrass to develop and sell systems that integrate its own disk and tape systems and Banyan's networking hardware and proprietary virtual networking software (Vines).

Banyan's two new server products, the Banyan/DTS and Vines/286, provide all of the functionality of earlier Banyan systems, company spokesmen said.

The Banyan/DTS was designed to support small organizations or departments with between five and 20 users, spokesman Paul Bergeron said. A Motorola, Inc. 68000-based proprietary server with a PC-size footprint, the product incorporates a PC-compatible bus that operates at twice the standard speed, according to Banyan.

Banyan/DTS supports up to 5M bytes of main memory, between 43M bytes and 118M bytes of hard disk storage and a 60M-byte tape drive, one serial and two parallel ports, up to eight asynchronous or synchronous connections and support for an external battery backup.

A base configuration including 1M byte of memory, a 43M-byte hard disk and the Vines networking software and support for one local-area network (LAN) is priced at $9,995. Shipments by Banyan and Tallgrass will start in August, both firms said.

Vines/286 is a version of Banyan's networking software package that runs on a standard IBM Personal Computer AT or compatible, converting it into a Banyan network server. Streettalk, Banyan's global data base for identifying, locating and

See BANYAN page 43

Standards bureau finalizes X.400

Specifications will link U.S., European E-mail

By James A. Martin

WASHINGTON, D.C. — The first complete version of the X.400 Message Handling Standard (MHS) protocol was recently finalized by a special interest group of the National Bureau of Standards.

Initially proposed as part of the Open Systems Interconnect model for vendor-independent communications, MHS defines a common interface that enables users to send documents between different types of computer systems and network services.

The specifications for MHS Version 1.0 are to be delivered on July 1 to the standards bureau and the Corporation for

See BUREAU page 37

New satellite to bypass local loop

By Stanley Gibson

Scheduled for launch in 1989, an experimental National Aeronautics and Space Administration communications satellite may provide a cost-competitive alternative to fiber-optic transmission.

Dubbed a "switchboard of the sky," the Advanced Communications Technology Satellite (ACTS) would use high-powered narrow scanning beams in the Ka-band (20 to 30 GHz) to achieve geographically targeted point-to-point communications.

Unlike conventional satellite systems that use a single fixed-antenna coverage pattern to transmit to a wide geographic region, such as a continent, ACTS would use a multibeam antenna that directs narrow beams at specific geographic regions — generally cities and other high-volume traffic areas.

See SATELLITE page 38

INSIDE

Artel Communications introduces a modular net system of multichannel optical-fiber rings/38

NEW THIS WEEK

- Luma Telecom introduces its Luma picture-transmission telephone
- For more on this and other new products, see pp. 77-87.

INSTANT ANALYSIS

"I'm glad you told me about the problem, but given the choice, I would not solve it by taking out the equipment I just put in. Instead I would just avoid using the code."

— George Goodman, vice-president, T. Rowe Price Associates, Inc., reacting to the news that his T1 equipment's diagnostic code could generate problems

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Bureau caps off X.400

From page 35

Open Systems (COS). If COS approves the protocols, as is expected, the standards bureau will incorporate them into the OSI model. COS will then make the protocols available to member companies such as IBM and Digital Equipment Corp. for testing, implementation and software design.

With Version 1.0 of the specifications, equipment vendors and long-distance carriers "now have enough to build their X.400 products around," said Peggy Garza, a member of the X.400 special interest group (SIG). "From here, we will work on a Version 2.0 of the specifications," she added.

The X.400 SIG implementation agreement specifies that all X.400 interfaces between message handling systems use the CCITT X.25 packet-switching protocol. This will provide a common denominator between U.S. and European systems, Garza said. "The United States has become very local-area network and Ethernet based, while Europeans are almost entirely using X.25-based network systems," Garza commented. "Electronic mail typically requires wide-area links, so long-distance carriers tend to use X.25 for those purposes."

'Historical event'

The finalization of MHS 1.0 is "a historical event, because never before have vendors and users gotten together to agree on a particular implementation," remarked Jean-Joseph Cinecoe, Open Systems Interconnection product manager for R&D at Wang Laboraties, Inc. in Lowell, Mass.

Version 1.0 of the X.400 SIG specifications was not designed to be all-inclusive, said Herb Klein, an X.400 SIG member and senior manager for MCI Mail's international systems development, a division of MCI Communications Corp., in Washington, D.C. "There are questions that are unanswered," he said. "We haven't decided how to interpret all the areas of ambiguity.

"When people begin to implement and build the applications software," Klein explained, "additional questions will arise, and when implementations from dissimilar software developers begin to interconnect, we will see there still is a requirement for further definition."

One feature that Version 1.0 lacks but which should appear in Version 2.0 is a standard set of directory protocols, which would allow users to send electronic mail messages without having to specify the network service to which the intended recipient subscribes. According to Garza, integration with the Manufacturing Automation Protocol (MAP) and Technical Office Protocol (TOP) is another important area that the committee will focus on with Version 2.0. MAP and TOP are networking protocols developed primarily by the manufacturing industry. Whereas MAP was designed for factory floor networks and TOP for the office environment, the two protocols will use many of the same upper level protocols — including, probably, X.400 MHS.

Implementing Version 2.0 MHS within MAP and TOP, Klein said, will enable MAP/TOP systems to communicate with X.400-compatible systems via public network systems. Specifications for MAP/TOP compatibility with X.400 are scheduled to be finalized later this year.

"I'm sure X.400 SIG has facilitated and hastened the implementation of X.400 products," said Jim White, a member of the Washington, D.C.-based Electronic Mail Association's standards committee. White is also chairman of Rapporteur, an international CCITT committee on X.400, as well as senior scientist with GTE Telenet Communications Corp. in Reston, Va. "They have produced a set of agreements and specifications that have held up nationally and internationally."

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Fiber net supports multiple protocols

Users can interface fiber nodes without interrupting net

By Elisabeth Horwitt

A modular network system of interlocking, multichannel optical-fiber rings was recently introduced by Artel Communications Corp of Worcester, Mass. The Fiberway family of local-area network products will support multiple networks using different protocols, including Ethernet and the IBM Token-Ring network, the company claimed.

"Fiberway is really an optical-fiber version of a broadband network; but unlike broadband, it can support multiple network protocols on different channels," said Richard Cerny, president of Salem, N.H.-based consulting firm Trellis Communications Corp. "With a digital fiber-based network, it's easy to add or expand channels incrementally as you need them."

Fiberway uses the same basic topology as IBM's network scheme, in which each device is linked to a local ring that is actually a series of loops radiating from a wiring closet. Wiring closets are then linked by an optical-fiber backbone ring. Fiberway's backbone supports up to eight 25M bit/sec. channels.

The EXL 50 Ring Interface Unit enables up to eight computers to transmit at 25M or 50M bit/sec. via a direct link to an optical-fiber local network, according to Artel Chief Executive Officer Tad Witkowicz.

Such speeds are made possible by the wider bandwidth supported by fiber and by a proprietary token-passing protocol that eliminates collisions, Witkowicz added. EXL 50 supports any devices equipped with boards that conform to the 802.3 Ethernet standard.

"The EXL 50 is ideal for superminis and engineering workstations that need to transmit at high speeds," he noted. Available now, it costs $8,750.

Fiberway network monitoring, diagnostics, reconfiguration and access control are performed by Netserver, IBM Personal Computer-based software. If a network segment goes out of service, the units reconfigure themselves so the problem is circumvented, Witkowicz said. The EXL 50 version of Netserver, available now, is priced at $9,450.

Planned releases for late this year and early 1987 include interfaces supporting the IBM Token-Ring, T1 Carrier and 3270 communications protocols; the Node Concentrator, a low-speed, low-price connection to the optical-fiber backbone via twisted-pair wiring; and a network bridge that attaches local rings to backbone rings.

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NATA vying to retain Computer Inquiry II

By Elisabeth Horwitt

The National American Telecommunications Association (NATA) is trying to discourage the Federal Communications Commission from abandoning the Second Computer Inquiry ruling that requires regional holding companies to maintain separate telecommunications services and customer premise equipment operations.

In a recent issue of the industry newsletter "Washington Update," the organization argued that currently implemented accounting safeguards are "wholly inadequate to prevent phone companies from using profits from monopoly exchange services to prop up unregulated offerings."

The companies are already using ratepayer funds to subsidize 1985 losses of $1 billion in the customer premise equipment arena, NATA claimed. It added that if regional holding companies are allowed to shift only three-hundredths of 1% of revenue, they will be able to win an extra 22% of the private branch exchange market and 14% of the key system market.

Satellite to bypass loops

From page 35

Unlike typical satellite network configurations that direct transmissions from a central earth station hub to remote sites, ACTS would perform the switching operations itself as it directed the narrow beams to earth stations in different metropolitan areas.

ACTS technology promises to compete with fiber-optic terrestrial lines because it enables customers to bypass the local-loop segment of long-distance networking, says John Evans, director of research at Communications Satellite Corp. (Comsat) Laboratories. Comsat is a contractor on the project.

Local-loop access charges make up much of the cost of long-distance transmissions, he notes, adding that although the growing use of optical fiber will bring down the cost of inter-local access and transport area networking, terrestrial network costs will remain high because users will still be forced to pay high local-loop charges.

In contrast, ACTS customers will be able to receive transmission directly from an ACTS earth station in their area. One of the first goals of the program is to have an ACTS earth station in each operating company's region, according to Evans.

While the satellite would have fixed beams operating continually to certain major metropolitan centers, it would use "hopping" beams that would target lower-use areas as demand required.

NASA's plan has one satellite above the U.S. and another above Europe. The two would be connected by laser transmissions sent by satellite-based devices, currently being developed by MIT's Lincoln Laboratories, that would convert radio frequency transmissions to laser beams.

Evans says an additional benefit of the ACTS program is that it would allow satellites to be placed closer together by utilizing narrow-beam transmissions. Current requirements dictate that satellites be placed no less than 3 degrees apart in geosynchronous orbit above the equator. But much of the space in key segments of the equatorial arc is getting used up, according to Evans. Narrow-beam satellites can be placed only 1 degree apart, he notes.

If funding goes through as planned, ACTS would go into experimental operation by 1989. But the project's future is in jeopardy because of pressure put on NASA as a result of the *Challenger* disaster and by the Reagan administration's budget cutting campaign. These factors may combine to shut off research on the ACTS program, leaving the field open to Italian and Japanese interests that are working on similar technology.

In the belief that private industry should put up the money necessary to research and build ACTS, the Reagan administration tried to delete the funds for the system from the budget last year and again this year.

However, Congress overrode the administration's wishes in the past, and a House committee has earmarked $95 million for the program this year. A final decision on funding is expected when the budget is enacted in the fall.

Brandel says he knows of no private-sector companies willing to continue the program without government funding. RCA Corp., holder of the $280 million prime contract, and subcontractors Motorola, Inc., TRW, Inc. and Comsat, are waging a campaign to get the funds reinstated.

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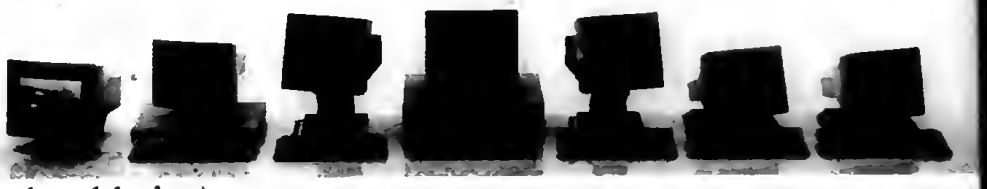

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AT&T

The right choice.

Take T1 wheel from vendors

From page 35

doesn't recur, which is all the telecom manager really cares about.

Unfortunately, some users' "ignorance-is-bliss" attitude allows T1 carriers to avoid dealing with a problem that will affect other customers' T1 installations. Granted, reported instances of the glitch are rare so far; but several industry representatives claim that the problem will get worse as private T1 lines proliferate.

It has also been suggested that the code mix-up has been responsible for network outages that were blamed on another problem. This is only too likely, considering that inexperienced net customers have no way to question carriers' diagnoses.

What grounds are there for accusing the T1 industry of a cover-up? Well, consider the fact that vendors and carriers have been sitting on a standards committee for about a year now, debating whether they should bother to fix the problem without bothering to tell customers anything about it. There is also the matter of cost. Repairing that elusive glitch would mean an expensive, extensive retrofit of existing equipment — and regional holding companies are more than likely to foot a hefty chunk of the bill.

Customer pays

This was the principal argument put forward by a Nynex Corp. spokesman who was against doing anything about the situation. He further pointed out that customers would wind up paying for the repair job in the form of rate hikes.

He insisted Nynex does not use the kind of equipment that causes the problem. (This is only technically true. Another Nynex source said the company has standardized around a manufacturer whose equipment generates a similar problem.) And if such a situation did arise, he concluded, it probably was caused by the customer misconfiguring the equipment.

I am always suspicious of a vendor that protests too much and of reasoning along the lines of, "There is no glitch, and in any case, it's much too expensive to fix."

For users, however, the issue goes far beyond the question of whether their T1 lines are likely to be hit by this particular headache. The broader question is whether a business is willing and able to acquire the tools and in-house expertise to manage its own network.

Increasingly, both the need and the opportunity are there. Companies are depending more and more on T1 lines to disseminate crucial strategic information. As their networks increase in complexity, they can no longer afford to place their network operations in the hands of a vendor.

The good news is that next year we will see T1 line diagnostics that bypass carrier premises. They will reportedly enable users to troubleshoot their networks on an ongoing basis without having to interrupt operations.

Best of all, users will be able to spot and fix problems before they become critical instead of depending on a carrier that tends to respond only to disasters.

Banyan enters low-end mart

From page 35

controlling access to network users, services and resources, is included. Vines/286 requires a minimum of 512K bytes of random-access memory. Both firms said they expect to begin shipping the product in October.

Standard features for both systems include file and peripheral sharing, access to mini and mainframe computers, links between two similar or dissimilar networks and gateways to X.25 packet-switching services and private wide-area networks. IBM PC networks from Corvus Systems, Inc., Proteon, Inc., IBM, 3Com Corp., Ungermann-Bass, Inc. and others can be linked through a Banyan server.

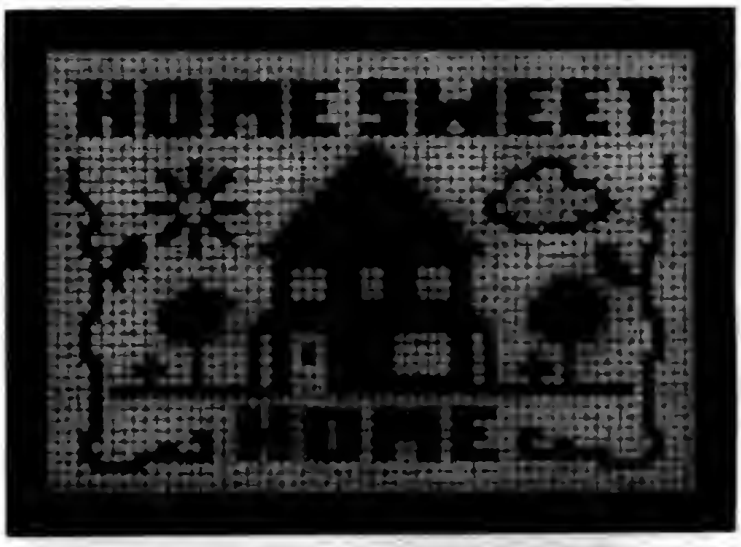
Banyan's Bergeron said the new file server products bring the firm into direct competition with 3Com and Novell, Inc., both of which have concentrated on networking clusters of PCs in small to medium-size organizations. The difference, he claimed, is that Banyan's "technology is at the beginning of its life cycle, while others' might be in a mid-life crisis."

Continental Grain Co. is currently evaluating the Banyan/DTS as a possible server for its smaller field offices. Larry Stouder, manager of the information center at the New York firm, said that he was "more than satisfied" with the desktop file server's performance.

The company had already installed an earlier version of the Banyan server on two floors of its headquarters. One server supports a 43-node Proteon Pronet token-ring network and a small Ethernet cluster. A second server supports a 20-node Ethernet network that will be replaced by a Pronet.

"We chose Banyan because it didn't lock us into a LAN architecture. We already had the Ethernet network, but it didn't matter if we went with Arcnet, Pronet or the IBM PC Network," said Eric Dickstein, senior business technology specialist. "I look at the Banyan server as the black box of black boxes."

According to the terms of the two-year, $8 million OEM contract, Banyan will supply Tallgrass, an Overland Park, Kan., mass storage subsystems vendor, with its 68000-based board and Vines software. Tallgrass will market a desktop file server, the TG-8000, and a software-only version — the TG8000-AT.



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MICROCOMPUTERS

SMALL TALK
Douglas Barney

Favoritism and the small firms

There is growing fear among small and medium-size software developers that Microsoft Corp. and its hardware OEMs may be playing favorites by selectively leaking information about MS-DOS 5.0 to only large software veodors, giving them a leg up on the market for next-generation MS-DOS applications.

This scenario is quickly dissolving the hopes of small software developers that a new Microsoft operating system that unlocks protected mode and crumbles the 640K-byte barrier would give them a chance to break the iron grip held on the software applications market by Lotus Development Corp. and Ashton-Tate.

Microsoft, however, pleads innocent, blaming its hardware OEMs for any leaks that may have occurred.

Because smaller firms will probably take longer to develop sophisticated protected mode applications, they worry about a head start for their larger competitors, even if everyone gets information at the same time.

However, smaller developers do not even know when MS-DOS 5.0 will be available. All Microsoft Chairman Bill Gates will say on the matter is that a protected mode MS-DOS for the Intel Corp. 80286 chip will be out sometime in 1987.

The president of one small diversified software firm recently met a Microsoft representative and broached the subject of preferential treatment for the likes of Lotus and Ashton-Tate.

See FAVORITISM page 50

Barney is Computerworld's senior editor, microcomputers.

MIS executives waiting for promised productivity gains

By Alan Alper

NEW YORK — While seeking specific solutions to personal computing problems, management information systems executives are finding only generic remedies, a situation that is causing much frustration in the user community.

"Up until now, Lotus Development Corp.'s 1-2-3 has been the answer if you are doing a spreadsheet, graphics or data bases," noted Stephen Bosley, an analyst with the consulting firm International Data Corp. "People are sick of getting generic answers to specific business problems. Maybe that's why value-added resellers are getting as much attention as they are."

At a forum on personal computing directions sponsored by Computerland Corp. of New York recently, MIS executives voiced a litany of requirements, as yet unfilled by hardware and software vendors, that could enable users to attain long-promised productivity gains.

Needed, they said, are more powerful and faster systems, lower cost networking schemes and new and revised application software packages that are easier to use and better focused.

Many MIS executives said they were eagerly awaiting the next generation of Intel Corp. 80386-based microcomputers. The allure of 80386-based systems, promising true 32-bit processing, expanded memory capacity and multitasking functionality, they said, could provide the impetus to develop higher productivity application software.

Although 80386-based systems are not expected to be available in quantity until next year or early 1988, some firms are postponing PC buying decisions until they know more about the next-generation systems.

Lester Pierre, a technical manager at U.S. Trust Corp., said his firm is in a holding pattern with regard to the purchase of

See WAITING page 49

Software Publishing to join packed mart

Desktop publishing tool aimed at corporate users

By Douglas Barney

MOUNTAIN VIEW, Calif. — Software Publishing Corp. will launch an IBM Personal Computer-based desktop publishing software package this September into a market that will be teeming with competitors.

"The program is scheduled to be released formally at the Desktop Publishing Conference that we are sponsoring in San Francisco," said Jonathan Seybold, editor of "The Seybold Report on Publishing Systems," published in Malibu, Calif. "But at

See FIRM page 48

Autodesk tool draws praise

By Rosemary Hamilton

CHICAGO — Continuing to ride its wave of success, Autodesk, Inc. was met with rave reviews from users last month at its Autocad Exposition, a "show within a show" held at the annual Architectural/Engineering/Construction Systems conference.

Users repeatedly praised Autocad, the vendor's microcomputer-based computer-aided design and manufacturing (CAD/CAM) software. Autodesk also used the forum to introduce several products.

The only complaint concerned Autodesk support, which, apparently, has not kept up with a user base that has swelled to more than 50,000. But Autodesk officials

See AUTODESK page 46

INSIDE

Convergent Technologies announces a PC emulator board/46

Studio Software Corp. introduces its second desktop publishing package for the IBM Personal Computer/46

NEW THIS WEEK

- Hewlett-Packard offers graphics software for Vectra PC
- Ideassociates introduces add-in multifunction boards
- For more on these and other new products, see pp. 77-87

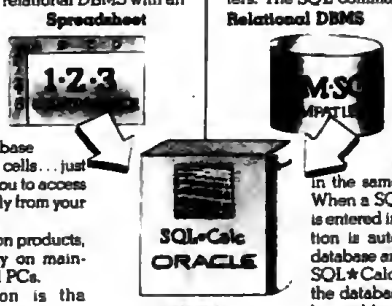
INSTANT ANALYSIS

"I can't remember any market in the microcomputer business that was not oversold."

— Brian Jeffery, director of research, International Technology Group, Palo Alto

Oracle's SQL★Calc makes a relational DBMS as easy as 1-2-3.

Oracle Corporation has developed a Lotus 1-2-3 compatible spreadsheet and integrated it with its ORACLE® relational database management system (DBMS). The new product, SQL★Calc,® is the first to combine a mainframe-class relational DBMS with an easy-to-learn and familiar PC spreadsheet user interface.



SQL★Calc is designed for 1-2-3 users who've run out of memory, flexibility and patience. SQL★Calc allows you to put SQL database commands into spreadsheet cells... just like formulas. This permits you to access large amounts of data directly from your spreadsheet.

Like all Oracle Corporation products, SQL★Calc runs identically on mainframes, minicomputers and PCs.

SQL★Calc's foundation is the ORACLE relational DBMS, which provides users with a complete set of SQL commands through which they can create, retrieve, modify and otherwise control their data. SQL is the industry standard database command language for large computers. The SQL commands available in ORACLE are identical to the SQL commands in IBM's premier mainframe relational DBMS products, SQL/DS and DB2.

Built on this powerful DBMS foundation is a Lotus 1-2-3 compatible spreadsheet that allows users to put SQL commands into spreadsheet cells in the same way as they enter formulas. When a SQL command for data retrieval is entered into a spreadsheet cell, information is automatically retrieved from the database and placed into the spreadsheet. SQL★Calc also permits users to modify the database - and even create new database tables - directly from the spreadsheet.

SQL★Calc is easy to learn because its menu and command structure are compatible with those of Lotus 1-2-3. And SQL★Calc's ORACLE DBMS requires no supplement: It is vastly more powerful than the database components of 1-2-3, Symphony, Framework, dBase II, dBase III, or any other PC DBMS.

SQL★Calc is available immediately for IBM PC/XTs and ATs for $995.* SQL★Calc will soon be available on a wide variety of systems, including IBM mainframes, DEC, DG, and other superminis, and most UNIX systems.

For further information, or to order your copy of SQL★Calc, call 1-800-345-DBMS. Or write Oracle Corporation, Dept. CS, 20 Davis Drive, Belmont, CA 94002.

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PC Emulator board runs MS-DOS, CTOS concurrently

Convergent VARs, OEMs get Ngen tool

By Peggy Watt

SAN JOSE, Calif. — Convergent Technologies, Inc. last week announced a PC Emulator board for OEMs and value-added resellers (VAR) marketing Convergent's Ngen line of workstations. The board enables users to run Microsoft Corp. MS-DOS applications concurrently with Convergent's proprietary CTOS operating system.

The PC-001 PC Emulator Module contains an Intel Corp 80186 coprocessor with 768K bytes of internal memory and an IBM Personal Computer AT-compatible BIOS, designed by Phoenix Software Associates Ltd. of Norwood, Mass., according to Joanie Banks-Hunt, product manager.

The coprocessor enables the user to run several operating systems, including MS-DOS, CTOS and Distributed Unix. The board comes with MS-DOS 3.1 and Microsoft GW-Basic.

The board will also provide file sharing across local-area networks (LAN), including the Convergent cluster LAN, she said. Standard PCs cannot now be added to the Convergent cluster network, but that enhancement is in the works, she added. The PC Emulator attaches to the Ngen's X-bus expansion bus.

Suggested retail price for the board, which will be sold entirely by OEMs and VARs, is in the range of $1,500, Banks-Hunt said. It will be available immediately.

"It's one of those thiogs the customers have been wanting, especially for low-cost networking capability," she said. "Our major OEMs have already signed to carry it, and it will cover almost our entire customer base."

The PC Emulator Module can run several of the MS-DOS programs that are considered a test of true IBM PC compatibility, including 1-2-3 from Lotus Development Co. and Flight Simulator from Microsoft, a Convergent spokeswoman said.

However, some copy-protected programs that look for the NEC Home Electronics, Inc. floppy disk controller chip used in the IBM PC as their copy-protection scheme may not run on an Ngen system equipped with the PC Emulator, Convergent said.

Convergent also claimed the board emulates an IBM Monochrome Display and printer adapter, IBM Color Graphics Adapter, Hercules Computer Technology, Inc. Monochrome Graphics Board and IBM Asynchronous Communications Adapter.

The board measures 8-in. high by 2½-in. wide by 12-in. long, weighs less than 10 lb and fits into the engine-option module of the Ngen.

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Autodesk tool draws praise

From page 45

assured users the problem was caused by its rapid growth and that the problem would soon be resolved.

"When I was asked to speak today, and to keep it brief, I thought, How can anyone do justice to a product like Autocad in 10 minutes? Well, I can't," said Rodger Marks, a planning staff engineer at Caterpillar Tractor Co. Marks was a participant in a panel discussion called "Autocad in the Corporate Environment," held last Thursday.

"The indications are very clear that everyone is going to Autocad," said Hillel Even-Ari, an Israeli architect who was on a U.S. visit representing the Society of CAD/CAM and Robotics in that country.

Many users, however, raised the issue of Autocad support. Some users said they had tried without success to get direction from Autodesk concerning which dealer to do business with.

One user said he did not want Autodesk to give its blessing to any one dealer; all he wanted was a listing of dealers in the Seattle area. But no one at Autodesk would provide that information.

"The company has grown so fast, maybe some things occurred that shouldn't have happened," said Tony Monaco, vice-president of marketing and sales. Monaco, who spent 24 years at IBM, was brought in to Autodesk two months ago, in part to address such problems.

At the show, Autodesk introduced the latest version of Autocad, Release 2.5, which is said to have 70 new features. These features reportedly include pan and zoom capabilities that are up to 10 times faster than previous versions and support of the Lotus/Intel/Microsoft Expanded Memory Specification.

The product sells for $2,750, and upgrades from the six previous versions are available. Users pay the difference between their early-version cost and the $2,750 price of Release 2.5.

The company also released Autocad 2.5 for both the IBM RT Personal Computer and the Sun Microsystems, Inc. Sun 2 and Sun 3 lines of 32-bit workstations. The software will also sell for $2,750.

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Icon-oriented desktop publishing package out for IBM PC

By David Bright

IRVINE, Calif. — Studio Software Corp. recently introduced Frontpage, its second desktop publishing package for the IBM Personal Computer.

With the icon-oriented $695 package, users without a graphics arts background can reportedly produce professional-quality documents on a laser printer in a short time. Studio Software is the vendor of Do-It, a more expensive publishing package.

The IBM PC and compatibles are lagging behind the Apple Computer, Inc. Macintosh in the desktop publishing market. Last year, 34,000 desktop publishing software packages were sold for the Macintosh and only 3,000 for the IBM PC, according to estimates from Dataquest, Inc., a San Jose, Calif.-based market research firm.

The June introduction of the productive, low-cost, easy-to-use program gives Studio Software a slight jump against competitors expected to have similar products available this fall, said Arlene Karsh, director of the computer publishing service at market researcher CAP International, Inc., of Marshfield, Mass. Among the expected competition are packages from Aldus Corp., Ashton-Tate and Software Publishing Corp., she said.

The key applications for Frontpage program will be newsletters, the production of data sheets and financial reports, said Peter Clarno, vice-president for product planning and development.

The program's features include preformatted document layouts, a library of type fonts, full hyphenation and justification and on-screen editing capabilities. Graphics files from Lotus Development Corp. 1-2-3 can be merged with text.

Firm joins packed mart

From page 45

the same time, Xerox Corp. will unveil its program that it acquired from Ventura Software, Inc., and Aldus Corp. will unveil the IBM version of Pagemaker.

"In fact, almost 30 new desktop publishing programs will be released at the conference," Seybold said.

And more competition is on the way. "You haven't seen yet how firms like Lotus Development Corp., Microsoft Corp. and people of that sort are moving. It is rapidly going to be a marketplace in which there are well-known players," Seybold predicted.

Although desktop publishing is now dominated by applications written for Apple Computer, Inc.'s Macintosh, many firms in the market are now writing for the IBM PC and compatibles.

"There is a gigantic installed base that is not addressed by the Macintosh," said John Monson, product manager for Software Publishing.

Software Publishing's package, currently codenamed Cheetah, was acquired from Bestinfo, Inc. of Springfield, Pa., a developer of PC-based typesetting, pagination and composition software.

Price less than $1,000

The package will sell for less than $1,000 and is said to target the corporate marketplace.

"It is mostly for internal corporate communications and things that need good quality, but not typeset quality, such as proposals, data sheets, newsletters, brochures and manuals," explained George Fanucci, engineering project manager for the Cheetah project.

Software Publishing is reworking the user interface of the Bestinfo product to make it more appealing to desktop publishing users.

"The goals are simplicity and ease of use. It will bear a strong resemblance to our other Harvard products, especially Harvard Presentation Graphics," Fanucci said.

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Waiting for productivity

From page 45

microcomputers. "It's very tempting to go with 80286-based machines, but we feel we have to wait to see what the 80386 offers," Pierre noted.

IDC's Bosley contends that high prices are deterring corporate purchases of 80286-based machines, not anticipation of the next generation. "Why would users want to buy PCs for $2,000 now when they hear prices on PCs, other than IBM's, could fall to as low as $500 to $700 by Christmas?" he said.

Limitations of 80286-based microcomputers, such as the inability to address more than 640K bytes on the motherboard, are also restraining enthusiasm for the current generation of systems, noted John Koski, assistant vice-president at Johnson & Higgins, a Detroit-based insurance broker and benefits consultant.

Among other things, Koski hopes an operating environment is developed, similiar in concept to IBM's Topview, in which all applications software can be used regardless of the data format.

"Until we get to that point," Koski said, "projected productivity gains are nothing more than a con job."

Another area of concern is more effective networking solutions. With most of the networks currently available, users have to write their own software and tailor it to their specific needs.

Networking is a major focus at Memorial Sloan-Kettering Cancer Center. The medical and research center will most likely install a token-ring network but says there are few options in linking up with a mainframe.

"Ultimately, we'd like to have a network of PCs," said Matthew J. Syracuse, a personal computer analyst in Sloan-Kettering's information center. "We'd like a network server so the PCs could talk to a mainframe. We haven't discovered a clear-cut solution yet."

As more sophisticated solutions are unveiled, many of which will solve specific personal computing problems, some MIS executives wonder whether it may complicate users' lives as opposed to facilitating productivity.

"I wonder, for example, once we get true multitasking with the 80386, whether the advantages obtained will somehow offset that mystical force of ease of use," Koski concluded.

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Voice-run workstation hits mart

AUBURN, Wash. — Hoping to give the still small voice recognition market a boost, Microphonics Technology Corp. last month introduced a Microsoft Corp. MS-DOS-based, voice-controlled communications workstation.

Targeted at office and factory workers as well as handicapped people, the $1,999 IBM Personal Computer-compatible system can also accept an optional voice synthesizer and a radio headset.

Called the VOX/COM PC, the machine incorporates the company's Pronounce voice recognition product, which is also available for the IBM PC. Microphonics marketing director Dave Williams claimed more than 2,000 of the $695 add-in boards and software packages have been sold, which he says makes Microphonics a leader in the voice recognition market for office automation.

Off-the-shelf applications

Said to provide voice control over all off-the-shelf IBM PC applications, the VOX/COM PC also features a 1,200 bit/sec. modem, a NEC Information Systems, Inc. V20 processor operating between 4.77 MHz and 14 MHz and a 20M-byte hard disk drive.

Other features include redial of busy numbers, Touch-Tone password security, call-progress tone detection and an electronic mailbox buffer. With a voice synthesizer, the system can read messages, stock prices and electronic mail to callers at remote locations.

Williams said a variety of voice synthesizers can be connected to the system, including an optional $199 unit from Microphonics.

— David Bright

Favoritism and the small firms

From page 45

According to the president, the Microsoft rep never denied that Lotus and Ashton-Tate received information on MS-DOS 5.0 that is still unavailable to smaller developers.

"It is nothing to worry about," the rep argued. But he was wrong, and that president is most surely worried.

The vice-president of a graphics software firm also expressed concern over the lack of information about MS-DOS 5.0 and was especially concerned that the large firms will move into his market when a new age of applications emerges. With Lotus' acquisition of Graphic Communications, Inc., maker of Graphwriter and Freelance graphics software, those fears are strengthened.

An up-and-coming software vendor reported his Microsoft representatives say they would be glad to tell all about the next version of the operating system, but the reps always seem to forget the nondisclosure forms.

Small developers are also well aware that Microsoft may have an advantage on all its competitors when it comes to protected mode applications. Microsoft, the major player in applications software for the Apple Computer, Inc. Macintosh, intends to expand its role in IBM applications. Microsoft Word for the IBM Personal Computer is a best-seller, and others, such as Chart, have done reasonably well.

Microsoft, which is breaking the barrier, must seem to have a head start over the rest of the industry in creating protected mode applications. A new version of Microsoft's Excel for the IBM Personal Computer and compatibles that runs through Windows could hamper even Lotus' effort to sell its own next-generation packages.

But larger software vendors who are considered by Microsoft to be strategically important have fewer beefs with Microsoft. Microrim, Inc. President Kent Johnson says his firm has access to the same information as the biggest vendors, but Microsoft markets Microrim's R:Base overseas, so a close relationship is to be expected. Johnson declined to say what type of information his firm has received.

Another thorn in the side of smaller developers is the Windows operating environment. Microsoft has made it clear to developers that if they want to be compatible with future versions of MS-DOS, they should write for Windows.

However, early converts who hoped writing for Windows would ensure that their applications would be poised to take advantage of protected mode may be disappointed. According to developers, a protected mode version of Windows will be released shortly after MS-DOS 5.0, and applications may have to be written for the new version of Windows in order to achieve total compatibility with the new operating system.

Therefore, software authors say, the larger firms tardy in endorsing Windows are now on par with the earliest converts. In this case, Lotus and Ashton-Tate, both of which, particularly Ashton-Tate, were late and rather lukewarm in endorsing Windows, could keep pace with the market just by standing still.

Microsoft claims there will be a large degree of compatibility between current Windows-based applications and the next release of the operating system. But the supplier cannot guarantee complete compatibility because MS-DOS 5.0 is not finished yet.

> ***'If you can only work with a set number of people, it makes good business sense to work with the top five.'***
>
> — Michael Swavely
> Compaq Computer Corp.

"It is not in Microsoft's interest to shut anybody out," remarked a noted securities analyst. "Clearly, as an operating system developer, they need the endorsement and the support of developers to write to their packages. But in a question of who gets the first peek, the sheer market clout of Ashton-Tate and Lotus and others might dictate that they would get the first look or maybe the greatest attention."

Others agreed that Microsoft and the hardware OEMs have valid reasons for not telling all they know to smaller software developers.

"You have to put yourself in Microsoft's shoes or in Compaq's shoes," said Michael Swavely, vice-president of marketing for Compaq Computer Corp. "When you look at the market today for PC software, the top five software companies have over 80% of the current market. If you can only work with a set number of people, it makes good business sense to work with the top five, as opposed to trying to spread yourself out to five hundred.

"We don't want to discriminate, and we don't intend to, but we have to prioritize our resources, and you tend to prioritize where the majority of the business is. It is an unfortunate part of business life," Swavely noted.

There may be other losers besides small software vendors in this scenario: The users who look for innovative next-generation software may find few choices among suppliers.

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Executive Report

Edited by Janet Fiderio and Becky Batcha

INSIDE

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Safeguarding privacy

MIS confronts a sensitive challenge

By MITCH BETTS

At one high-tech corporation, a resourceful manager rigged the office electronic mail system so that it would reproduce at his terminal all messages designated for other executives. He was able to do it because his company enforced no rules regarding mail routing or confidentiality.

In a large law firm, the office manager was concerned about the confidentiality of client files, because they contained proprietary client information as well as sensitive legal material. To test the security of the system, she created a blank file labeled "confidential." Employees accessed it eight times in one day.

In another corporation, a union official obtained a computer-based list of managers' bonuses. Recognizing the information's potential for damage, he leaked it to the press.

These abuses of data security and privacy, documented in a little-known study commissioned by the U.S. Congress last year, illustrate the kinds of problems that automated offices may face if their data security regimens neglect basic principles of privacy and their confidential information gets disclosed.

Such instances not only embarrass both employees and the organization but also may violate federal or state privacy laws. The MIS manager, like other corporate managers, holds legal responsibility to protect salary data, medical records and other employee information. If his organization's security practices fail to protect individuals' privacy, he will get hauled into court to explain why.

"The MIS director is the one who has the legal responsibility for making promises of confidentiality work in the systems or operational context," according to Columbia University's Alan Westin, one of the government study's two leaders. Westin and Lance Hoffman of George Washington University conducted the study under contract to Congress' Office of Technology Assessment (OTA).

Westin and Hoffman note in their report on the study that the legal duty to safeguard confidential information does not increase if information is stored on a computer rather than manually. However, courts will examine what security measures the data holder could have taken to protect

Widespread use of PCs leaves confidential information virtually unguarded. In companies that don't act to protect data security, MIS will be held responsible.

Betts is Computerworld's Washington, D.C., correspondent. He frequently reports on security and privacy issues.

MIS confronts a sensitive challenge

Continued from previous page

personal information in any case that involves a breach of privacy.

"Courts will look to the prevailing customs and practices of security in a given type of data system and use a 'state-of-the-art' inquiry to determine if reasonable care had been exercised," the report says.

Despite the possible consequences, many organizations have only just begun to institute privacy policies for automated offices, according to Westin and Hoffman. Their report includes the results of a survey of 301 computer security professionals from medium-size and large businesses and federal agencies and notes a variety of breaches of computer-based, confidential information. The incidents include such abuses as secretaries disclosing personal and salary information to executive headhunters; employees selling customer mailing lists to competitors; and, in one case, a worker disclosing the salary of every employee in a corporate department.

In all, 14% of the respondents reported that someone inside their organization had leaked computer-based personal data about employees to an outsider, and 12% reported leaks of client or customer data to outsiders.

The problem has gotten worse recently, because confidential information — which has always been relatively well protected on mainframe computers — is now left virtually unguarded, as files are downloaded to microcomputers or spread throughout the office via electronic mail.

"What used to be the hub of security on the mainframe is now being lost because the information is disseminated to personal computers," according to Dave James, data administration and security officer for Riggs National Bank in Washington, D.C.

Robert E. Johnston, director of data processing for Phoenix Mutual Life Insurance Co. in Hartford, Conn., agrees. "The biggest problem is what I call the unauthorized transfers of information from the mainframe to the micros, which is currently technologically impossible to preclude," he says.

A trend toward end-user computing means that access to confidential information is spread to people who lack the data processing professional's instincts for data privacy and security, according to the OTA's final report, "Automation of America's Offices."

"The computer professional's sociocultural system had within it values, beliefs and concerns about privacy and security of information," the report says. "Today, people who have never participated in the sociocultural system of data processing environments, who have not been informed about the fine points of the law and ethics of protecting confidentiality or assuring data security, have easy access to an organizaton's data bases."

The report adds that end users who create ad hoc dossiers about clients on their micros may be violating laws, regulations or company rules. "If there is no auditing or physical inspection of end-user files, then management may be unaware of such conduct and suffer legal sanctions or have the company's reputation compromised."

In fact, almost half of the security officers surveyed for the Westin-Hoffman report said the proliferation of micros is leading to less compliance with government privacy rules such as the Fair Credit Reporting Act.

Experts say the solution is for MIS directors to take a lead role in ensuring that the confidentiality rules prevalent in the central data processing shop are applied to the end-user computing environment. In the last 12 to 18 months, some enlightened firms have begun to establish policies for end-user computing that cover security and the confidentiality of information. However, they are in the minority.

"Right now, I guess we have not more than 50 companies that have gone through that exercise with the degree of sophistication that is needed," according to Westin, a long-time privacy researcher and president of the Educational Fund for individual Rights in New York.

Many of the firms that were shrewd enough to write privacy policies for mainframe data bases — such as IBM, Control Data Corp. and Bank of America — have taken the lead in applying those same principles to end-user computing, he says.

"What we need to have in the next few years is to parallel what happened [for mainframe data] in the late '70s and early '80s. You have to go from the few dozen who have been very shrewd and done the right thing and move to the next 100 companies, and then it makes its way to the next 1,000 companies. It's an imitative process. There are the leaders and then the second-stage followers, and then there's the bandwagon phenomenon, and finally there are those who only the law will reach," Westin says.

Confidentiality policies for end-user computing should contain the same privacy principles that are accepted for mainframe data bases, he says, namely the following:

- Giving notice to an individual that a file on him is being created.
- Ensuring that only relevant and necessary information is recorded.
- Giving the employee the right to see and challenge the record if it is used to make employment decisions about him.

"What we'll have to say for end-user computing is that there is now a new form of recording information about an employee that is the end-user floppy disk," Westin says. He stresses that corporate privacy codes should extend to cover files that end users create on their micros.

Westin concludes that the job of the MIS director is to understand the problem, educate top management about what needs to be done and provide technical guidance and expertise on how to carry out the policies. Only top management has the clout needed to enforce a privacy policy, he says.

THE FIVE FAIR INFORMATION PRINCIPLES

JEFF DABROWSKI

- There must be no personal-data record-keeping systems whose very existence is secret.
- There must be a way for an individual to find out what information about him is in a record and how it is used.
- There must be a way for an individual to prevent information about him obtained for one purpose from being used or made available for other purposes without his consent.
- There must be a way for an individual to correct or amend a record of identifiable information about him.
- Any organization creating, maintaining, using or disseminating records of identifiable personal data must assure the reliability of the data for its intended use and must take reasonable precautions to prevent misuse of the data.

Information provided by "Records, Computers, and the Rights of Citizens," published by the U.S. Department of Health, Education and Welfare, Secretary's Advisory Committee on Automated Personal Data Systems, 1973.

> ***A trend toward end-user computing means that access to confidential information is spread to people who lack the data processing professional's instincts for data privacy and security.***
>
> — Office of Technology Assessment report

The Westin-Hoffman study found that some firms create a corporatewide privacy review committee or task force to establish fair information standards and educate employees. Others see that the company security officer handles the tasks.

A securities brokerage house that was cited in the study distributes to all its employees a privacy code of conduct for handling sensitive information about employees and clients.

The code requires employees, for example, to inform any customer, upon request, about the uses and types of personal information collected about him.

A cover letter from the firm's chief executive officer accompanies the code. In the letter, the CEO states that it is imperative for employees to guard sensitive client information "to maintain the client trust and loyalty we currently enjoy, as well as to meet any challenges that might be imposed by legislators, competitors or consumer advocates concerning the privacy issue."

The firm's security officer is now trying to expand the code to cover microcomputers. He also wants to start an education program and purchase an encryption package that supports access controls for downloading information from the corporate mainframe to micros.

Before organizations can address privacy and security, they must first decide what they consider confidential information, according to George Trubow, director of the Center for Information Technology and Privacy Law at the John Marshall Law School in Chicago.

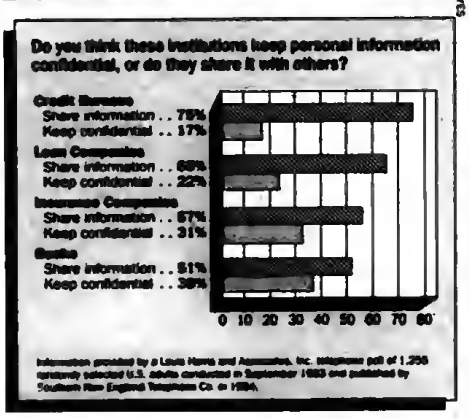
"For instance, consider the detailed personal information that an employee may submit on his personnel application," he says. "The company ought to recognize that this information should not be disclosed outside of the people in the company who have a need to know and have been authorized to access it.

"Companies need to clearly establish policy,

Continued on page 56

PUBLIC PERCEPTIONS OF CORPORATE PRIVACY PRACTICES

MICHAEL J. HAYES



Information provided by a Louis Harris and Associates, Inc. telephone poll of 1,255 randomly selected U.S. adults conducted in September 1983 and published by Southern New England Telephone Co. in 1984.

Expert's Opinion

Work monitoring: Productivity gains at what cost to privacy?

By SANFORD SHERIZEN

The next time you log on, imagine that every one of your keystrokes, pauses, work breaks, meeting times and data entry mistakes is being recorded for review.

Later, the records of these events get sorted, read and evaluated. They then become part of your permanent record. The people reviewing the data remain anonymous, and the information they collect never becomes available to you.

Sherizen

This is not Orwell's 1984, with government as Big Brother, but electronic work monitoring, which has moved from the assembly line to the white-collar office and is beginning to keep tabs on middle managers.

Sherizen is a Natick, Mass.-based information security consultant. He coauthored a report on work monitoring for the U.S. Congress' Office of Technology Assessment.

Work monitoring entails the capture and analysis of data to indicate the quantity of work being done. Corporations can purchase tools and enlist methodologies that record and analyze input, usage and output.

Monitoring has become an easy way to use technology as a tool to regulate technology and users. It is a large step in the automation of control. Because work monitoring carries major implications for both productivity and privacy, MIS and data processing managers require some standards of when and how it is appropriate. Unfortunately, few such standards exist.

The nation's courts tend to accept the idea that workers who use company equipment on company time give up certain rights. But they leave unclear exactly how many rights workers need to give up, even for important managerial reasons, before too much of their privacy is violated. The Privacy Act of 1974 and similar laws either do not apply or are too limited to provide guidance. The fair and just balancing of needs is hard to determine legally.

For the time being, then, managers must make their own judgments as to whether a specific instance of monitoring weighs most heavily on the productivity side — helping a firm get the most from its employees — or on the side of intrusion — invading individuals' privacy.

Work monitoring is clearly a productivity issue, with three major corporate pressures in its favor.

The first pressure is to use technology as efficiently as possible. As computers become more complex, their proper use becomes more difficult. Companies need to track an enormous amount of detail and make systemwide evaluations to regulate the use of their equipment.

The second pressure comes from cost-accounting requirements, which have become more complex as interactions between system users have increased and overlapped, necessitating monitoring for resource management and chargeback details.

The third pressure, less directly related to productivity, concerns information security. As corporations feel a need to protect proprietary information and other sensitive data, they turn to data flow surveillance and audit trail reviews.

At the same time, monitoring is a privacy issue. Companies need to remember that their counts and measurements represent some of the most intrusive searches used outside of law enforcement, a fact that leads some observers to suggest that workers are losing their constitutional protections of privacy.

Corporations gather details of their employees' work and leisure activities — even the extent of a given worker's attention span. Compilations of data covering long periods of time become part of a worker's dossier, indicating how productive, cooperative and cost-effective he is.

Work monitoring also stirs up issues of fairness. The information that monitors collect is not as scientific as some people assume. Too often, work monitoring takes the place of appropriate managerial supervision. It replaces human evaluations with nominally objective facts.

Quantity (number of keystrokes) gets misused as a measure of quality (how well someone works), and managers tend to use data against some workers rather than all, creating an opportunity for discrimination. Employees may never get a chance to see important data about themselves or to evaluate the information's accuracy.

Furthermore, today's worker

See SHERIZEN page 57

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Continued from page 54

print it up, share it and educate employees on it," Trubow says.

Perhaps even more important than writing the policy is communicating it to users, according to other experts. Nancy Finn, an office automation consultant with Communication Resources, Inc. in Needham, Mass., says, "I see the biggest problem in the end-user community as being one of education. People don't understand that certain information should not go across an electronic mail or messaging system.

She says education means holding meetings and workshops with employees about their responsibilities and recommends developing and communicating the privacy policy through an active, broad-based users group inside the organization.

At Riggs National Bank, James says, privacy is getting high priority because of an increase in the use of micros — which now number 300, compared with 50 a year ago — and the ease with which mainframe files can be downloaded to the micros.

James felt action was especially necessary because users were creating their own micro-based files, sometimes containing budget, payroll and personnel information. "You don't want any of your employees to be able to just come up to a PC, turn it on, see a file called 'personnel' and go and get it."

The bank has installed on its micros a software product called Privacy Plus from United Software Security, Inc. of Vienna, Va., which allows users to encrypt their files. The product is scheduled to be enhanced so that any data written to a floppy disk will be encrypted automatically and can be used only on that micro unless special permission is obtained to move it to another.

Although use of the encryption program is not mandatory now, employees are beginning to use it on their own. "It doesn't take long before some users lose a file or have a file read by somebody else, or they've left it up on the screen and come back to find somebody looking at the screen," James says. "Incidents occur, and then users recognize they should have used this product. It's beginning to catch on."

The next step, he says, is to send auditors to inspect the data stored on micros and check whether confiden-

Interview

ACLU technical leader addresses privacy law, civil liberties

Jerry J. Berman, director of the American Civil Liberties Union's (ACLU) Project on Technology and Privacy, is a leading privacy advocate who often testifies before the U.S. Congress. Working behind the scenes, Berman has helped to drive the Electronic Communications Privacy Act of 1986 — a bill that would outlaw the interception of data communications — through the Congress toward enactment this year. He was recently interviewed by Mitch Betts, Computerworld's Washington, D.C., correspondent.

Many privacy experts say that office automation increases the threat to individual privacy. What can be done about that?

Office automation technology can have applications that threaten privacy, but that's not inherent in the technology. It can be an enhancement of our capabilities to do work. We do have concerns about the growing use of computers to monitor the work of personnel. If it's done to improve productivity and help people do their jobs better, there's no adverse consequence. On the other hand, if computer monitoring is used to speed up work into an unreasonable assembly line operation or to keep workers in fear of retribution, and, therefore, create new stresses in the workplace, then the computer technology is being used in an adverse way.

The proper approach is to try to draw rules internally — or, if necessary, legislative guidelines — that strike a proper balance between the employer's right to use new technology and increase productivity and the employees' right to privacy and due process rights in the workplace.

The ACLU has been a driving force behind the proposed Electronic Communications Privacy Act. How did that begin?

Our interest began when it was discovered that the 1968 wiretap statute had a gap in it. It covered voice communications and was silent on data and machine-based communications. The new communications technologies that have come along since then — including electronic mail, cellular radio and teleconferencing — were outside the privacy protections of the law.

We thought the appropriate approach was to deal with it through comprehensive legislation rather than a case-by-case approach through courts, because that might lead to a jumble of interpretations. The courts deal with technology very slowly, very reluctantly.

Then we tested the politics of it by bringing together a variety of business and privacy organizations and legislative staff to discuss the problem in a public policy conference in June of 1984. The conference led to an informal political coalition to press for legislative change.

Without a broad-based coalition, including business and technology firms, there was no way that the legislation would pass in this Congress or this administration.

What should be done about the so-called pirate bulletin boards, which often trade stolen passwords?

ILLUSTRATION BY BRUCE GILLIV

The ACLU's Berman

If monitoring is used to speed up work unreasonably or to keep workers in fear of retribution, then the computer technology is being used in an adverse way.

Legislation is now wending its way through the Congress that would make it a federal crime to do that. We think that a bulletin board operator who is intentionally and knowingly posting stolen passwords is participating in a crime and an invasion of someone's privacy. In that narrow sense, we think that making such activity a crime is in the public interest.

At the same time, we are very concerned that legislation not be drawn in an overbroad manner that inhibits a whole new public forum, which is bulletin boards.

These statutes must be narrowly drawn, because if they make the operator liable for any illegal notices that may appear on the board, that could put the operator out of business because it would require the operator to monitor all of the traffic on the board. That may be too burdensome.

What we hope to address in the future is protection for the First Amendment rights of bulletin board operators.

Let's turn to computer matching, where federal and state agencies compare files to find welfare cheaters and debtors. Do you oppose all matching or just the cases with the greatest potential for abuse?

We think that computer matching should only be conducted if citizens are informed that the information that they supplied to the government is going to be used for that purpose. When a computer match is conducted, no adverse action should be taken on a discrepancy in information without giving a citizen the opportunity to explain. The third requirement is that it shouldn't be conducted with any file unless there is congressional authorization for it.

We'd like to see computer matching done in accordance with the principle that personal information that is collected for one purpose should not be used for another purpose without notifying the person and providing due process.

The larger concern today is not computer matching, but the move toward front-end verification, where instead of trying to take ineligible people off the roles, the government tries to keep people off in the first place. When you go to apply for financial aid, the government wants to check your information against a data base about you to see if you qualify — or to be blunt, to see if you're telling the truth.

In order to do that, the government is starting to link different data bases together using the Social Security number as a common identifier. These links provide access to different files containing employment, income, wage, pension, automobile registration, bank and tax information. In a sense, a front-end verification system is a de facto national data base — an electronic file on every citizen in the U.S.

This is happening in a piecemeal fashion; if the government announced it was trying to do this all at once, I think there would be a hue and cry from the public and it would go nowhere. We want to bring some attention to this and get Congress to write some legislative standards. For starters, we think that political, tax, census and race information should not be included in these merged files.

Given all of the debatable privacy issues, do we need a new privacy commission or think tank or congressional committee?

For many years the thinking of the privacy community has been that the ultimate solution is the creation of a government data protection board like the ones in Europe.

Speaking for my project and the ACLU, we do not think that is the appropriate approach. Even if it was, a new federal regulatory board is just not in the political cards in an age of deregulation. And if the Reagan administration or any administration thought the privacy board was creating too many restrictions, the obvious strategy would be to change the board's membership.

Certainly the Reagan administration has demonstrated that you can take a civil rights commission and turn it right around. Furthermore, there are First Amendment concerns, since data protection boards tend to push toward licensing schemes concerning when you can use certain information.

But I don't mean to suggest that we don't need oversight mechanisms. We have recommended the formation of a select congressional committee or commission that would analyze and give guidance on a range of information policy issues, including computer and communications security and privacy. ■

tial data is encrypted or not. In the meantime, James has given security presentations to the bank's users group and is making presentations to various offices on data security and integrity issues. "In order to get security into the mind-set of all individuals, you have to sell it," he says.

Getting the privacy message across to employees should at least help reduce the abuses caused by ignorance, negligence and curious browsing through files, according to many observers.

"Browsing has always been present, long before there were computers," according to John Marshall's Trubow. "With manual systems, it was very cumbersome, but when you can sit at a keyboard and get access to virtually every corner of the corporation, curiosity has become a real problem. It's not something to be brushed aside."

Richard Cashion, assistant director of data processing at Tennessee Technological University in Cookeville, Tenn., reports a case in point. "I had an instance here several years ago where one of the data entry operators told someone else about the payroll deductions that several people were taking," he says.

Although it was just an offhand remark, Cashion considered it a serious infraction and treated it as such. "That person had access to the information but not permission to release it. The disclosure is serious and requires educating that person that it's wrong," he says.

The consequences of disclosing personal data can run from the merely annoying to the very serious. Robert P. Campbell, a security and privacy expert and president of Advanced Information Management, Inc. in Woodbridge, Va., recounts one incident that came down heavily on the latter side. "We had a case in the Washington, D.C., area a few years ago, where a couple of convicts got access to a credit data base and used the information to target victims for burglary," he says.

If a company fails to respect and guard employees' personal data, serious legal consequences can arise. Several federal and state privacy laws require those who keep files of personal information to inform the subjects that the files have been created and may be used to make decisions about them.

Some state privacy laws are general in nature. Virginia's, for example, prohibits the intentional and unauthorized examination of "any employment, salary, credit or any other financial or personal information relating to any other person." Other state laws specifically protect credit, insurance, medical and banking records. In Michigan, for example, statutes protect the confidentiality of accounting, banking, insurance and medical research data and make it a crime to sell medical patient information.

Various other states protect records kept by psychiatric hospitals, pharmacies, drug abuse clinics, personnel departments, utilities, cable television stations, employment agencies, schools and newspapers as well as records about child abuse, human artificial insemination and abortions.

Congress might also step into the privacy arena, as it has from time to

Continued on page 59

FEDERAL PRIVACY LAWS

The Crime Control Act of 1973
requires that state criminal record systems, developed with federal funds, ensure the privacy and security of the data.

The Privacy Act of 1974
restricts the collection, use and disclosure of individually identifiable information by the federal government. It gives the individual rights to access the information and to correct it.

The Tax Reform Act of 1976
protects the confidentiality of personal tax information.

The Right to Financial Privacy Act of 1978
limits the access of U.S. agencies to information about customers of financial institutions by providing assurances about the privacy of bank records.

The Privacy Protection Act of 1980
prohibits government agents from conducting unwarranted searches of press offices and files.

The Electronic Funds Transfer Act of 1980
states that EFT providers must notify customers about third-party access to customer accounts.

The Debt Collection Act of 1982
establishes due process procedures that federal agencies must use to release any information about bad debts to credit bureaus.

The Cable Communications Policy Act of 1984
requires cable TV services to inform subscribers if any personal information is collected, used or disclosed.

Information provided by the U.S. Congress' Office of Technology Assessment's "Automation of America's Office" report, December 1985.

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monitoring device can very easily become tomorrow's citizen monitoring device, particularly given the availability of large-scale data bases containing personal information.

Because of this, the U.S. Congress, which has not been active in privacy matters since it worked on the Privacy Act 12 years ago, has started to raise questions once again. In the intervening time, advances in technology have opened opportunities for greater and greater invasions of privacy.

The Office of Technology Assessment (OTA), Congress' technical think tank, is preparing a report on the security and privacy implications of work monitoring for release to Congress this fall. The report will be available to the public shortly afterward from the OTA, Washington, D.C. 20510. ■

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Business concerns force insurers to lead the way in data security

By EVAN HENDRICKS

For the insurance industry, the collection and protection of customers' sensitive personal data is an integral concern. "We probably handle more kinds of sensitive information than any other business," says R. Otto Meletzke, director of regulatory services and corporate legal affairs for the American Council of Life Insurance.

Life and health insurance companies collect, maintain and sometimes share details on individual medical conditions and treatments. The data, along with the statistics that are drawn from them, serve as the lifeblood of an industry that perhaps better than any other exemplifies the information economy.

It comes as no surprise, then, that insurance companies remain on the cutting edge of any technology that is designed to safeguard sensitive information from unauthorized access and other abuse. Insurers understand that to maintain the free flow of customer health information, which is so important to their survival, they must guarantee confidentiality.

An unpleasant memory from the 1960s, the Factual Services Bureau case in Colorado (*Colorado* v. *Home Insurance Co. et al*) underlies insurers' concern for the privacy of data. In the case, an insurance support organization was prosecuted for alleged theft, bribery and misrepresentation in obtaining confidential medical information from hospitals and doctors and selling it to insurers.

Ultimately, the Colorado Supreme Court dismissed the case, finding that the perpetrators could not be prosecuted under theft laws because "information was not a thing of value." Insurers know better, and they quickly moved to clean up their act.

Considering the massive volume of data they handle, they have been remarkably successful; no similar horror stories have surfaced. Insurance executives will sigh with relief that the industry has thus far avoided an electronic Love Canal; at the same time, they will deftly slip their hands under the table to knock on wood.

The main responsibility for protecting personal medical information maintained by life and health companies lies with data processing. And, as the following examples show, MIS departments in the industry try to leave no stone unturned.

Prudential: Layers of security. William Burgess, a Prudential Insurance Co. vice-president for information systems, says his company has added succeeding layers of security over the years because, "As the files grow, the risk grows."

Prudential's internally designed data security system features a great number of built-in controls. Access to computerized records, for example, is separated along the lines of the military's need-to-know principles.

> ***Companies can protect sensitive information more easily on a computer than they can in a manual system.***
>
> — Bill Roberts
> Pacific Mutual Insurance Co.

An elaborate system of internal passwords — both general and transaction specific — is designed to ensure that a minimum number of people can get access to sensitive claims data. People working on policies, for example, do not get access to claims. Burgess says the firm does not experience problems with computer hackers, in part because Prudential's most sensitive systems are separated from its dial-up systems.

Pacific Mutual: Passwords and more. Bill Roberts, a Pacific Mutual Insurance Co. vice-president for information systems, expresses a belief common among data protection managers: Companies can protect sensitive information more easily on a computer than they can in a manual system,

See HENDRICKS page 62

Hendricks is editor and publisher of "Privacy Times," a biweekly legal newsletter based in Washington, D.C.

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Continued from page 57

time (see chart page 57).

The OTA, a congressional advisory body, concludes in its report that if organizations are not willing or able to apply privacy safeguards to end-user computing to protect their clients and employees, "Congress may wish to clarify and strengthen through legislation the liabilities that such organizations incur by their failure."

Congress is already on the verge of passing one new privacy law. The Electronic Communications Privacy Act of 1986, a bill that would prohibit the interception of data communications such as electronic mail, is headed for enactment this year, perhaps as soon as August.

Under the existing body of state and federal law, it appears that corporations have little legal recourse if confidential information about them is disclosed.

The concept of corporate privacy — or the protection of corporate information that does not fall into the categories of trade secrets, copyrights or patents — is a fuzzy area.

For example, a firm might use some form of industrial espionage to find out how many employees a competitor assigns to a particular research project — as well as their job descriptions, titles and other details — in order to discover what market the competitor is seeking.

"In this country, corporations have not been recognized as having a privacy interest," Trubow says. "Since we don't have a clearly recognized right to corporate privacy, that information is unprotected," he adds.

Consequently, Trubow says, a company may be able to take legal action against an employee who discloses sensitive information after signing a nondisclosure agreement, but it cannot take action against the recipient of the sensitive information.

"Now that's a very troublesome area," he says. "I'm not one who wants to give corporations any more shield behind which to hide their conduct.

"But, on the other hand, I do recognize that corporate entities have an interest in this gray area of information that is extremely important to them in a competitive environment," Trubow says.

Likewise, data processing managers argue that once their organizations take raw data and turn it into a sophisticated information system, that information has value and should therefore warrant legal protection.

However, the courts are not comfortable with the abstract concept that information can be owned and protected, Trubow and Cashion say.

What privacy threats will companies face in the future? Experts warn that there will be an increasingly strong appetite by credit and marketing firms for personal information about employees and clients.

"I think there is a tremendous market developing for personal information on individuals," according to Advanced Information Management's Campbell.

He argues that, with the consumer economy growing more dependent on credit, financial institutions will be driven to hiring private investigators to obtain information on individuals for credit checks.

"There is going to be a greatly increasing demand for accurate, reliable and critical pieces of information on the individual: his character, credit and health. Consequently, market forces are probably going to cause a third-party industry to evolve that will deal in the collection and dissemination of this type of information," Campbell says.

Investigators will develop an underground network of sources within major corporations to obtain the information for credit checks.

"People who are granting credit will be less and less able to tolerate bad decisions," Campbell says, "because deregulation will force profit margins down and make it so much more competitive."

Market researchers will also seek personal data to identify sales targets, Campbell says.

"I had an incident about two years ago when a local agent for an insurance company, which my wife has a policy with, called up and started inquiring about our insur-

Continued on page 62

THE THREE ISSUES OF OFFICE PRIVACY

JEFF BARNEAU

1. **Data Collection.** Decide what personal information is relevant, necessary and socially acceptable for your organization to collect in order to carry out its missions.

2. **Protection.** Decide who should have access to personal data, and under what circumstances it can be released outside the organization.

3. **Notice and Access.** The subject of data collection should know when a record has been created about him, have the right to examine the record and be able to challenge the accuracy, completeness or use of the record.

Information provided by the U.S. Congress' Office of Technology Assessment's "Automation of America's Office" report, December 1985.

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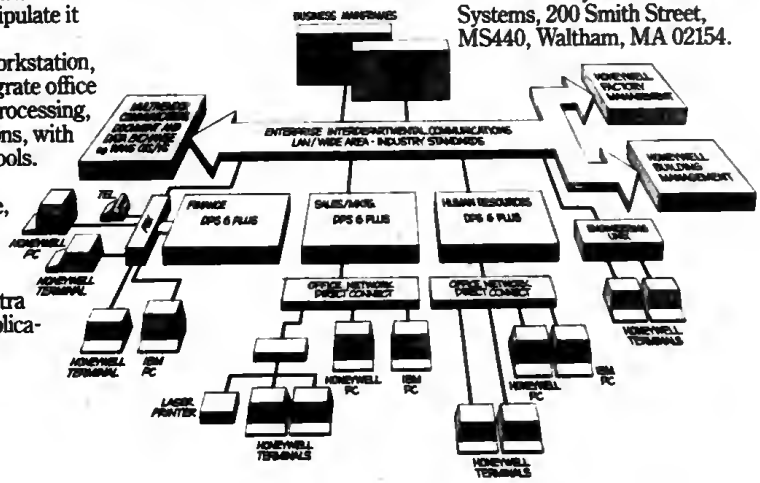

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Continued from page 59

ance portfolio. He went into his local data base and started reading stuff about us that I didn't think he should really have access to. He was using his micro and some downloaded data from the insurance company's main computer to prepare a sales pitch to us. I found it offensive."

Tennessee Tech's Cashion adds that insurance agents have called him at the university and said they would pay him for a computerized list of students and their grades or a list of all employees with their salaries and addresses.

Attempts to buy confidential information are nothing new, Westin observes. In the last 10 to 15 years, there have been numerous episodes of police selling computerized criminal history files to businesses and people buying data from credit bureaus, he says.

"In addition, the sale of customer lists to competitors is as old as business itself," Westin says.

There are numerous cases where New Jersey casino employees steal computerized lists of heavy rollers and sell the lists to a competing casino, which then offers inducements to the big bettors to switch their heavy play over to them.

"Those are the kinds of penetrations of privacy and confidentiality that have gone on in the manual era, in the early computing era and are absolutely predictable in the future," he adds.

"Now you can get larger quantities of data, and with end-user computing, it's within the general reach of many, many more people inside the organization," Westin says. ■

HENDRICKS from page 58

he says. His firm's password system is a good example of why the maxim holds true.

Roberts depicts the system as a multilayered one much like Prudential's: "First, you need lots of numbers in the right sequence just to get in. Then you still need special logon codes to get access to the files you want," he says. "The number of passwords is doubled if you are calling from the outside."

Pacific Mutual maintains off-site storage to back up the system in case of a disaster or accident.

The MIB: Access rights and disclosure rules. The insurance industry's relationship with the Boston-based Medical Information Bureau (MIB) has created the world's largest electronic network of health data.

More than 750 life insurance companies participate in an on-line exchange of medical data with the MIB, which is a sort of credit bureau for health data. The bureau's system was designed to prevent life and health insurance applicants from giving incomplete or inaccurate medical histories.

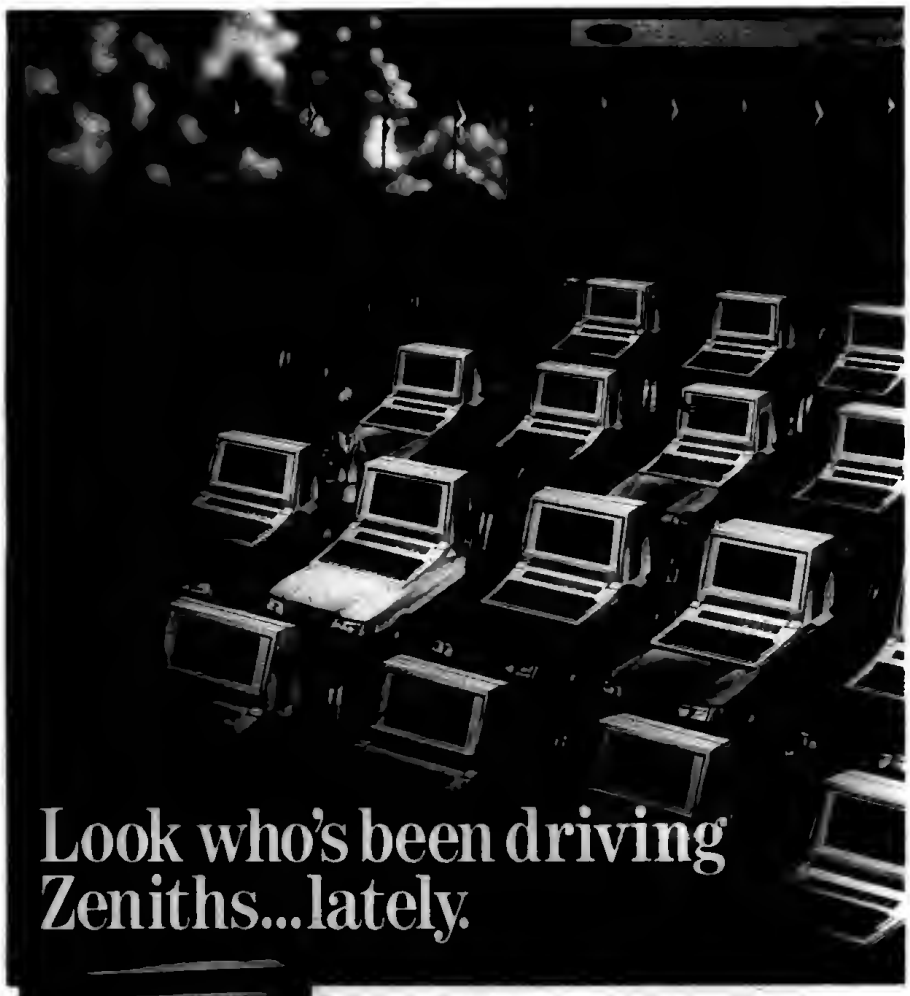
Insurance companies report customers' medical conditions — blood pressure, weight, height, X-ray results and the like — with one or more of about 210 codes. Five additional codes cover nonmedical information such as a history of reckless driving and/or participation in hazardous sports.

In 1971, the MIB adopted many of the privacy protections and fair information practices that the U.S. Privacy Protection Study Commission would recommend for all industries five years later. These include the right of customers to obtain copies of their own records and to correct inaccurate data.

MIB rules require that insurers provide applicants with a written notice of data exchange practices and consumer access rights. Each year, about 7,000 people request access to their MIB files. Of those, about 200 seek corrections.

Disclosure is restricted as well. Member companies can only obtain a person's file after the individual signs a written authorization. The MIB refuses to release reports to nonmember companies, to credit or consumer reporting agencies or to government agencies that do not have a court order.

Moreover, insurers cannot make underwriting decisions on the basis of data provided by the MIB. "It is meant to be nothing more than an alert system," according to Nick Latrenta, an assistant vice-president for Metropolitan Life Insurance Co. "We have to independently corroborate any data we get." ■



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In Depth

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How to provide a happy ending for your systems project

Rescuing new systems that are technically correct but are doomed to fail • Heading off executives who rely on intuitive solutions alone • Crystal ball: a model to predict your organization's response to change

By ROBERT MAHER
and CONSTANCE ALEXANDER

A major challenge for information technology planners is to design solutions that work on two levels: technical and organizational. Understanding this challenge, AT&T's Organization Effectiveness Group (OEG) uses a "map" of organizational performance to guide clients through uncertain terrain when implementing new systems. This article presents that map and, using a hypothetical customer service center, shows how a technically correct system should also fit the organization's strategy, structure and people if the system is to achieve desired results.

□

Gleaming and efficient, the new Regional Customer Service Center is designed to hum with high-tech goodwill. Routine tasks are mechanized. State-of-the-art hardware promises ease of use. Software is tailored for the collection of crucial information, and the system is networked so that data can be transmitted in an instant to the right people.

Technically, the system is fast and efficient. To find out how things are going organizationally, listen to some of the people directly involved with the new customer service center:

• "Millions," the service center manager complains. "This data entry and retrieval system was supposed to save millions of dollars. And it would have, if service representative turnover hadn't skyrocketed. After six full months, the center is up and running, but we're spending too much time and money trying to keep it staffed. Turnover is up 120%. Sometimes I think we'd have been better off with the old tub files and the Hold button."

• "Oh sure. The Regional Customer Service Center is in a brand new building, much nicer than the old local center I worked in. But the new place reminds me of a glass-and-chrome filing cabinet," one of the service representatives confides.

"I feel like some kind of robot sitting at my workstation," the representative continues. "Stare at the screen, take one call after another. It used to be you could give some personal attention to customers when they had service problems. Now we follow a set format. What ever happened to the personal touch?"

When customers experience service problems, they call the Regional Customer Service Center and are efficiently routed to the first available service representative. The representative punches in a code, and customer records appear on the VDT.

As the customer describes the problem, the representative summarizes the information and enters it into the system. The representative also asks a few relevant questions and logs in the answers. In seconds, the updated file is transmitted to the appropriate local repair office so a technician can be dispatched to the customer location.

• "If you ask me," a supervisor chimes in, "it'll just take a firm hand to manage the new service center. Stricter rules — that's what we need. We have some

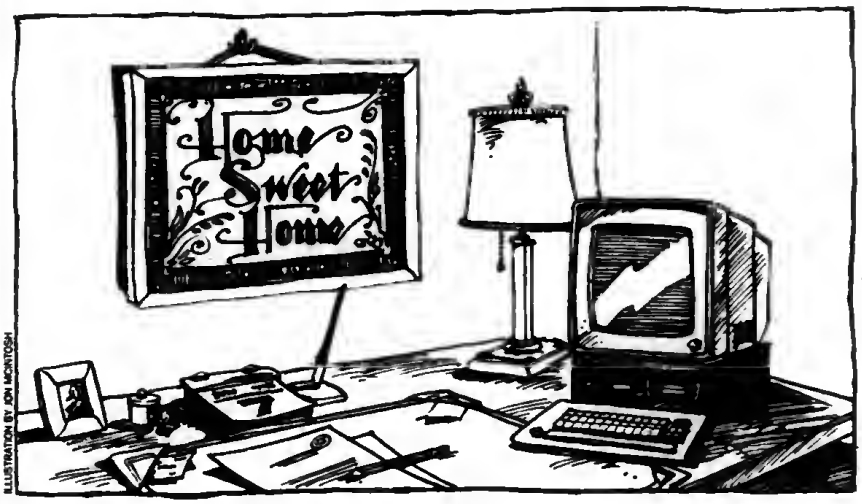


ILLUSTRATION BY JON MCINTOSH

About the authors
Maher is division manager of AT&T's Organization Effectiveness Group, a consulting and training group in Morristown, N.J. Alexander is president of Intex Communications, Piscataway, N.J.

representatives who transferred in from the local centers. And then there are the new hires — kids right out of college who have technical know-how but don't know much about our customers or our products. Of course, I don't need to pay much attention to the transfers. It's the new hires that bear watching."

• "We were told there'd be a change with the move to a regional customer service center," a customer explains. " 'Faster service,' they promised in the letters they sent out before the new system cutover. And they did what they promised. Calls go through immediately. Service representatives ask so many questions you can't get a word in edgewise before they say 'Thank you' and hang up.

"They send repair technicians out fast enough, but often they appear without the right tools for the job. Yesterday one of the technicians gave me his card. Told me customer complaints were at an all-time high. Said if I call him directly and bypass the Regional Customer Service Center I'll be better off."

Pitfalls

Apparently, the new system at the Regional Customer Service Center is frustrating everyone. A manager, a service representative, a supervisor and a customer criticize the operation.

No one is complaining about the technical aspects of system performance, but they are finding fault with the organization.

And when technical and organizational performance do not mesh, new systems like the Regional Customer Service Center's cannot achieve desired results.

The Regional Customer Service Center was designed by a talented team of individuals. How could such problems occur in spite of all that brain power? Was it just bad luck, or could any of the pitfalls of the regional service center have been avoided?

Such problems are not unusual. An informal study by Cyrus Gibson and Thomas Davenport for "Information Strategy: The Executive's Journal" evaluated 20 systems that were successful from a technical standpoint. Of the 20, 16 did not fully achieve expected organizational results, thus underlining the uncomfortable fact that technically correct systems do not guarantee that the desired organizational change will occur.

Skeptics might answer that a crystal ball is the only reliable way of seeing into the unknown, and most organizations just do not have access to such an infallible tool. But those who understand the dynamics of change know that a map is crucial when an organization is headed for new territory.

One such map is the Organization Performance Model (OPM), a tool AT&T's OEG uses with its clients in planning organizational changes like the move to the new Regional Customer Service Center just described.

The OPM is based on the work of David Nadler and Michael Tushman in their book, *Congruence Model For Organizational Problem Solving* (Columbia University, Graduate School of Business, New York, 1980).

The OPM is a framework that includes technical and human aspects of organizational performance — the two basic factors that need to be reconciled in the successful implementation of every system.

A systems view

The model is made up of four main elements: strategy, results, organization and leadership. The theories underlying its structure are simple:

• Strategy provides direction for the organization.

• Results are achieved by following the strategy.

• The organization translates strategy into results. In the OPM, the organization is composed of the work, the people, the formal structures and systems, the informal networks and power structures and communication — both feedback and "feedforward."

• When the individual components of the organization are aligned with the strategy, desired results can be achieved, because all the pieces fit.

• When a change is made in any individual component of the organization — the work, for instance — the other components need to be adjusted accordingly.

• A fine-tuned organization is important, but leadership at every level of the organization is a must if changes are to be implemented successfully.

Guided by the OPM, information technology planners can make sure that all the parts of the organization support the goals and objectives of the new system.

In context of goals

Of course, the strategy itself must make sense in terms of the organization's environment, history and resources.

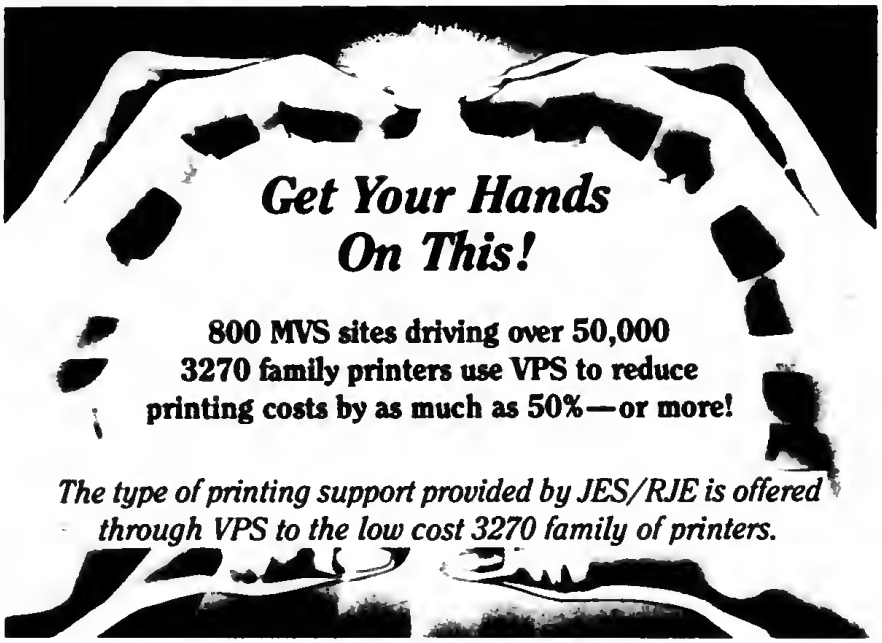
In the case of the Regional Customer Service Center, the strategy to regionalize and mechanize the customer service function was logical. Service can be the factor that differentiates competing products, and information technology, when implemented successfully, can sharpen an organization's competitive advantage.

If the strategy fits, then planners need to ask some basic questions before redesigning the organization and its components in support of that strategy:

— What is the organization doing now under the existing system? How will the work be different once the new system is implemented?

— What skills and knowledge do workers currently possess? What additional or different skills and knowledge will be required?

— What worker needs and



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preferences does the job currently fill? What needs and preferences will be met under the new system?

— What systems support the current way of doing things? What supports will be needed for the new system?

— How does the informal power structure support the current work? How will the new system affect the power structure?

— What steps do we need to take to ensure that the organization makes the move successfully from the present to the future?

Changes

In the Regional Customer Service Center's case, the work was going to change considerably — making the move from a manual system that required high interpersonal involvement and decision making by the service representative to an on-line data entry and retrieval system that routinized much of the process.

Under the nonmechanized local system, the work was performed by individuals who knew specific customers' needs.

Local service representatives, under the old system, took pride in their close relationships with customers and felt a sense of accomplishment in on-the-job decisions such as making suggestions to the repair technicians' supervisor as to which technician would be best assigned to a particular customer problem.

Local representatives brought years of experience in customer service to their jobs. Many of them had worked their way up through the ranks of nonmanagement jobs and enjoyed a sense of achievement about the help and guidance they were able to give customers with service problems. Under the new system, much of what satisfied the service representatives was to change.

Job design in the old system provided intangible benefits. Representatives were allowed autonomy and freedom to act. They were accustomed to calling the shots — telling the repair technician supervisor how a particular customer problem should be addressed. This aspect of the representatives' job would change considerably with the new system.

Formal structures and systems in the local service centers were linked directly with technicians, who in the past were usually housed in the same building. If technicians had questions about a particular customer problem, they could pull the file or ask the service representative questions before going out to fix it.

Furthermore, the informal organization in the local centers was built on long-standing relationships between customers, technicians and representatives. Irate callers were seldom a problem, because customers and representatives knew each other in outside settings. They might worship together or belong to the same social clubs; their children might play on the same soccer team.

Because of the close working relationships between service representatives and repair technicians, neither group was constrained by strict policies and procedures. They practiced flexibility, finding it easy to bend rules as needed to make sure customers' needs were well served.

With the move to Regional Customer Service Centers, this close alliance would be broken, because the informal network would be disrupted.

Action plans for reconciliation

If service was indeed to be a competitive advantage, the

> ***Strategy provides direction for the organization. When the individual components of the organization are aligned with the strategy, desired results can be achieved, because all the pieces fit.***

differences between the old and new systems needed to be reconciled.

By using the OPM to identify the extent and nature of the changes, systems planners can predict areas in which "fit" between the old and the new might be a potential problem.

Once the pitfalls are identified, action plans are constructed to address critical issues. For example, the following action plans were established for the new Regional Customer Service Center:

Work in the center was routinized, with less decision making required by service representatives. Existing representatives are informed of changes. The options of either moving to another local job or transferring to the regional center are offered. Training is provided to transfers. A recruiting program is developed to attract new employees to service representative positions. Career paths are aligned with recognition and reward programs.

Formal structures and systems for service representatives and local repair technicians had to focus on responsiveness to customer needs. Methods and practices of these two geographically separate groups are aligned, with emphasis on speed and thoroughness of service. Representatives supply complete information, so repair technicians had to make only one trip to a customer site to fix the problem. Measurement systems for representatives and technicians should complement each other.

Local technicians and regional service representatives needed ongoing communication to ensure success of the system. Interfaces between the technicians and representatives need to be managed. A feedback mechanism — a standing committee, perhaps — could meet regularly to review results, problems and achievements. The people responsible for the success of the change need to be involved in its assessment and adjustment.

History holds a key

As action plans are devised to help an organization meet the challenge of change, it is important to take a look at the organization's past to see if it holds any clue to the future.

History, quite simply, is a key indicator of an organization's ability to respond to change and its willingness to be both flexible and forceful as needed.

Some significant questions to consider include the following:

— How has the organization adapted to changes in the past?

— What changes have occurred in the organization in the past two years? Were the changes the result of outside pressure, environmental factors, organizational or structural changes or other factors?

— How have key decisions been made in the past? At highest levels only? At headquarters? By committee? By consensus? Seat of the pants? Firefighting mentality?

— How have key leaders, both formal and informal, acted in past times of change? Are these leaders still part of the organization?

— What stories or organizational legends are told about other changes that have occurred?

— What organizational strengths and weaknesses are indicated by the change history? What implications do these strengths and weaknesses have for the successful implementation of the impending change?

Leadership makes the difference

Without effective leadership, the most rigorous analysis and action planning can fall short of desired results. With the Regional Customer Service Center, for example, tools such as the OPM are bolstered by dedicated and empowering leadership.

According to Warren Bennis and Bert Nanus, coauthors of *Leaders: The Strategies for Taking Charge* (Harper & Row Publishers, Inc., New York, 1985), American organizations have been overmanaged and underled.

Further, the Bennis and Nanus studies find that leaders understand the difference between efficiency and effectiveness and spend their time doing the right things instead of doing things right.

Effective leaders, the kind whose organizations consistently perform up to standards of excellence, have a clear vision — a strategy — that creates a focus for the organization. They communicate this vision frequently and creatively and position the organization for change. They also empower those who follow them by emphasizing accountability and reliability.

Leaders, in short, understand the complex interrelationships of all the organization's components illustrated by the OPM. Armed with an understanding of the model, leaders can ensure the successful implementation of systems by taking the following steps:

- Communicating the goals of the new system.
- Securing commitment to those goals.
- Exerting influence to encourage high performance standards.
- Encouraging in employees a sense of personal responsibility for their work.
- Recognizing and rewarding desired performance.
- Instilling a spirit of teamwork.
- Understanding the impact of change on every level, especially middle and first-line managers who may perceive a loss of power and formal authority due to the change.
- Encouraging groups to collaborate.
- Creating an environment of trust, cooperation and open communication.

Leaders are needed at all levels, and it is essential that leadership

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style fit with the other elements of the organization.

Real-life application

The OPM comes to life when its concepts are applied to actual situations. If, in the case of the Regional Customer Service Center, the OPM had been used as a map in the planning phases, the results of the system might have gone something like this:

• "System's up and running, and it looks like we'll meet the projected savings," the customer service center manager reports. "It's a good thing we anticipated the high turnover rate.

"In this company, many of the nonmanagement peole would rather move to a different location, especially if a long commute is involved. The few representatives who did elect to transfer to the new Regional Customer Service Center were interested in making a change. Some of them were a little shaky with computers at first, but with a little reinforcement and some training, there are no problems."

• "I have a two-year degree in computer science, and I wanted a high-tech job with a big company," one of the newly hired representatives explains. "This service representative position gives me a foot in the door. It's a good starting place for me. The initial training helped me get acqualnted with the product line and gave me an overall understanding of the company. The system was a cinch to learn.

"The representatives who transferred from local offices have been great. We help each other out, in fact. They know the ins and outs of the company and the products, and I know the technical stuff. I like working in a new building right in the center of the city. Even the shift work isn't bad. I can go to the beach in the morning when I'm working 3 p.m. to 11 p.m."

• "Developing the right measurement system was one of the biggest planning challenges for the Regional Customer Service Center. At first," a supervisor confesses, "we toyed with the idea of strict time limits within which representatives had to get customer repair information and transmit it to the appropriate local repair office.

"Then we realized that fast service is no good if it's not the right service. We had to develop measures that emphasize quality, thoroughness and speed. And we had to work closely with technicians to find out the kinds of questions the service reps should ask. The technical people were involved in developing representative training, too.

"Finally, we had to make sure that service representatives and repair technicians were evaluated in ways that made overall sense to the strategy of service as a competitive advantage."

• "The new Regional Customer Service Center is meeting my needs just fine," a satisfied customer beams. "There are no more busy signals when you're calling for important repairs. And the technician arrives fast. It's amazing to think that the customer service center is hundreds of miles from here, but the details of my problems are available to local technicians immediately, just as they were when service representatives and technicians were together in local offices.

"If you ask me, I think the change is great. I'll stick with this company, maybe even pay higher prices, because service makes the difference."

A guide in times of change

The OPM is a conceptual representation of an effective organization. It includes all components of the business — strategy, work, formal structure and systems, the informal organization, the people, communications and leadership.

Because the OPM is a way of looking at the interacting factors that contribute to effective organizational performance, it can be used as a framework for predicting problem areas in times of change.

Applied to planning for the Regional Customer Service Center, for example, the OPM can be a powerful tool to ease the implementation of an information technology system that falters not because of technical flaws but because of gaps in the organization that made the new system cumbersome and unappealing to employees.

With the OPM, the organization is given a blueprint to follow and a common language and framework for planning so that managers can understand the scope of a new system's impact, predict problem areas and direct action plans that ensure system success. ■

> ***Effective leaders, the kind whose organizations consistently perform up to standards of excellence, possess a clear vision — a strategy — that creates a focus for the organization. These leaders communicate this vision frequently and creatively and position the organization for change. They also empower those who follow them by emphasizing accountability and reliability.***

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MANAGEMENT

TAKING CHARGE
David A. Ludlum

How info execs can get respect

Taking their cue from a popular comedian, a pair of information systems consultants recently invited me to explore their clients' lament that they "get no respect" from their bosses or from peers in other corporate departments.

The implication was that a culture gap as wide as the Grand Canyon, rooted in personality and language, separates information systems managers from other high-level executives. In the view of top executives, MIS professionals speak in incomprehensible jargon and marvel at technology for its own sake.

This issue of getting no respect seemed like an appropriate one to take to Las Vegas, where thousands of MIS managers were soon to gather for the 1986 National Computer Conference.

Despite the festive atmosphere of that overlit oasis, there was little humor in the responses of MIS managers queried on the issue of respect. They agreed that, as a group, they face an uphill battle in getting it from others in their organization (although several of them noted that the problem does not affect them personally).

But surprisingly, the managers tended to ignore the question of a culture gap, attributing the lack of respect instead to a larger issue — MIS managers' performance in meeting the needs of their users, which, in theory, is meeting the needs of their employers. To get respect, said one MIS manager after another, managers must aggressively

See HOW page 76

Ludlum is Computerworld's senior editor, management.

Scout pledge: Go on-line

Will give headquarters local membership data

By James A. Martin

IRVING, Texas — The "Be Prepared" motto of the Boy Scouts of America (BSA) is associated more with camping than computing. But with data processing costs rising and budgets shrinking, the BSA is giving its motto a new twist by putting its regional councils on-line.

Spalter

Although the BSA headquarters has been automated since the early 1960s, starting with an IBM 360, many of the smaller council offices across the country continue to process records manually.

Now, with the number of scouts to keep track of rising, record-keeping costs escalating and resources limited, there are strong incentives to lower costs through automation. The BSA's $3.6 million data processing budget for this year is down 7% from 1985.

"The cost of processing the paperwork goes up regularly, and without data processing, we would have to end up raising membership fees and subsequently lose membership," says Susan Spalter, director of the BSA's information systems division at the Irving headquarters.

"Most people are surprised that we have data processing support for Boy Scouts," Spalter says. "But we're no different from a profit-making company. We have to have funds to survive, although we can't compete for a profit."

The automation program also might help generate revenue by providing councils and headquarters with more complete data on members, personnel and supporters, which is especially valuable in fund-raising efforts.

The BSA's master plan calls for every local council to go on-line with membership data and possibly other information by 1988, according to Joseph L. Anglim, chief financial officer at BSA headquarters.

However, each council is responsible for funding its own operations, and the BSA will not force councils to computerize, Anglim said. "But somewhere off in the distance, it will be the only way for councils to do business with headquarters."

The BSA's information systems department functions as MIS to the councils,

See SCOUTS page 75

Management ability brings perks

By David A. Ludlum

Businesses are hiring information systems managers who are sensitive to their company's needs and then rewarding them with the sort of perks traditionally given to high-level executives, according to recent surveys.

Studies by consulting firms have also found that employers continue to pay premiums for data processing professionals with expertise in data communications, including on-line systems and micro-to-mainframe links.

Most information systems management jobs are being offered to people sensitive to the needs of the company and its computer users, according to a survey of MIS salaries in the Chicago area conducted by Consultants to Executive Management Co. of Oak Brook, Ill.

"The older 'data processing department manager' image is giving way to an image of 'data processing executive,' who uses information as an asset to the corporation, assisting other operating units in solving their business needs," said John D. McMahon, a senior consultant with the firm.

The survey also found that management salaries continue to increase, as do those for data processing professionals skilled in on-line applications, particularly IBM's CICS, in personal computers and in data communications — including mainframe-to-micro links.

According to McMahon, professionals

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INSIDE

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Calendar: Shows, conferences, seminars/74

INSTANT ANALYSIS

"The half-life of information systems executives that I have found in the Southwest is about 26 months before they're fired. And one of the reasons is they're not part of the management team."

— M. Victor Janulaitis of the Los Angeles consulting firm Positive Support Review.

David's Cookies, in the chips, selecting PC network vendor

Expanding firm moves on from service bureau

By Alan Alper

NEW YORK — Would David's Cookies crumble without a computer to handle its accounting tasks? Probably not, but the king of the franchise cookie business is not taking any chances.

The 7-year-old, privately held company is in the final throes of selecting a vendor to install a network of microcomputers to handle tasks such as order entry, inventory control, purchasing, accounts payable and receivable and financial reporting.

Office automation is coming to David's Cookies as it diversifies its product offerings and expands its international presence with outlets in Japan and Europe. The firm's 140 franchises do about $50 million in business annually, approximately $20 million of which drops to the bottom line, observers estimate.

David's Cookies' growth has reached a point at which annual financial reports and use of a service bureau for accounting modes do not meet its expanding needs, said Tim Downing, chief financial officer.

'Have to have a computer'

"We have to be flexible and able to turn on a dime," an emphatic Downing says. "To do that, we have to have a computer system. We're too large now not to have one."

Young, growing companies use service bureaus to keep their costs down and still receive some of the benefits of computerized accounting methods, consultants say. But, as firms grow, it becomes less cost-effective for them to use service bureaus since most bureaus charge their customers by the amount of work done. The more work done, the higher a firm's computing costs.

"The decision to go to an in-house computer, in part, is based on replacing variable costs with those that are fixed," notes Eric Knutsen, vice-president of consulting at Gartner Group, Inc. "Companies switch to their own system when the economic analysis says the fixed costs are less."

Downing adds, "It's an issue of control. You have more effective control over the end product with your own system.

"It's also a question of timeliness," he continues. "There are times when you are waiting for a financial report and the bureau's computer breaks down. Sometimes, they call the next day and say they have to re-enter your data."

Control of information

The firm has spent the last year working with a computer consultant to evaluate various technological approaches. "We went with the personal computer network because it offered the best method of control of information. It also was much cheaper than putting in a larger system," Downing explains.

Final vendor selection is expected to occur this month or August. David's Cookies is considering only vendors that supply hardware with com-

See DAVID'S page 76

Buyers sharpen focus before departing on trade show circuit

Cost consciousness reshapes agendas

By Jeffry Beeler

Among sophisticated buyers, the reasons for attending major trade shows, such as the recently concluded 1986 National Computer Conference, have changed dramatically during just the last few years.

Until fairly recently, "attendees went to NCC and other large trade shows primarily to get the big picture of what's going on inside the industry," observed industrial psychologist and behavioral scientist Allen Konopacki.

"That was a few years ago. Today, many of these same people are coming to the shows instead with some very specific agendas. They want to find out what is new in selected markets," he continued.

Konopacki, who works with Chicago-based Incomm International, Inc. and specializes in the psychology of trade-show buying behavior, bases his conclusion on the results of a telephone survey of approximately 2,000 users.

The study, which Konopacki conducted in the early 1980s with some university collaborators, asked "power buyers," or corporate executives whose annual systems budgets total at least $250,000, what they wanted trade shows to do for them.

Part of the reason why MIS executives are more focused today in their motives for attending NCC apparently stems from increased vigilance and control by senior management.

"Up until a few years ago, many attendees had some pretty fuzzy ideas about why they went to trade shows," commented Kenneth Facemyer, information systems manager at Supelco, Inc., a chemical supplier based in Bellefont, Pa. "But today, if you tell company presidents that you plan to spend $2,000 to attend NCC, they're going to expect you to explain exactly why you're going."

But the mounting pressure on systems managers to have clear-cut missions when they attend industry gatherings is by no means coming entirely from above. Many such individuals are finding their trade show agendas increasingly shaped from below by their end users.

Disseminating information

A case in point is Daniel Kennedy III, MIS director and vice-president of operations for Belwith International Ltd., which distributes cabinet knobs and pulls from its City of Industry, Calif., headquarters. In part, Kennedy's trips to NCC are dictated by the growing need among his users for information about microcomputers.

"In our company, we're seeing a migration of applications to personal computers, but we're also still concerned about controlling our data base," Kennedy said during a conversation at NCC. "DP has the responsibility for tutoring our users in how to use their PCs."

Thus, one of Kennedy's aims in visiting the NCC Las Vegas show this year was to bring himself up to date with the latest microcomputer developments and then to pass along this information to his nontechnical users, he said.

Other MIS directors, however, attend industry conferences with quite different — although no less narrow — goals in mind. Charles Williams, automated data processing service center manager at Oak Ridge National Laboratory in Tennessee, traveled to the latest NCC to search for networking products capable of improving the telecommunications speed and capacity among his three computing installations.

"I used to go to NCC to find out what the big vendors were doing," Williams said at the show. "But now, I have to come with some very specific objectives. The conference is just too big these days for me to be able to see it all."

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MANAGEMENT

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BOOK REVIEWS

CONTROLLING SOFTWARE DEVELOPMENT
By Norman Statland

Calling upon a collection of his client's information management philosophies, Norman Statland, national director for Price Waterhouse & Co.'s Information Resource Management Service, presents a methodical review of management techniques for controlling software development. The subtitle targets the audience: "A Guide for Information Resource Managers."

Aimed at corporate information resource managers, the book has a broader focus than the title suggests. Statland discusses the place of the information resource and the information manager within the corporation and provides a step-by-step approach to software development.

He discusses common errors in information resource management, such as relying on technical specialists or vendor promises to ensure a company's computers are being used to their best advantage. Statland responds to these issues by emphasizing the need for control through appropriate procedures and an understanding of how information resources contribute to corporate objectives.

Citing examples from his wide experience, he presents an overview of system development activities, including a basic system development life cycle for the construction of information processing software. He follows with advice on how to develop reliable computer programs and a review of the role of the project manager. Also covered are methods for determining costs and forecasting the future of systems development.

Hardcover, 182 pages, $32.95, ISBN 0-471-87505-8, by John Wiley & Sons, Inc., 605 Third Ave., New York, N.Y. 10158.

CD-ROM — THE NEW PAPYRUS
Edited by Steve Lambert and Suzanne Ropiequet

How do you produce a comprehensive book about a controversial new storage technology, like compact-disk/read-only memory (CD-ROM), that has prompted as many advocates as doubters?

Consult the experts, of course. Starting with Microsoft Corp. Chairman William H. Gates, the editors do just that, compiling 44 eloquent essays by a wide variety of authors, all of whom recognize the potential of CD-ROM and have become involved with it in some fashion.

Each section focuses on a specific aspect of the new technology, beginning with a look at the past contributed by Vannevar Bush, a pioneer in computer design and director of the U.S. Office of Scientific Research and Development during World War II. In an article reprinted from the July 1945 *Atlantic Monthly*, Bush describes the need for easily accessible new storage technologies.

The introductory section also includes a lively discussion of the marketability of CD-ROM titled, "Finally it works: Now it must play in Peoria," by David Miller, managing partner for DCM Associates, a San Francisco information resource management consulting and professional services firm.

From there, the editors get down to the business of what CD-ROM is, what it can do and who is implementing it where. They rely on a host of contributors, including Leonard Laub, a researcher, author and founder of Vision Three, Inc., a systems consulting firm; Bill Zoellick, manager of software research at TMS, Inc., a Stillwater, Okla., firm specializing in digital laser technology; and Jock Gill, president of Computer Access Corp., a Belmont, Mass., text-retrieval software and hardware company.

The elements of design using CD-ROM and the technology's potential impact on publishing are covered by Gabriel Ofiesh, Professor Emeritus of Educational Technology at Howard University in Washington, D.C., and Brian Martin, a consultant in systems and product development, among many others.

Turning to applications, the editors offer essays on the implementation of CD-ROM in the Library of Congress, medical and legal uses, geographic studies and archival and research activities.

Softcover, 618 pages, ISBN 0-914845-74-8, $21.95, Microsoft Press, Box 97017, 16011 N.E. 36th, Redmond, Wash. 98073.

DICTIONARY OF DATA COMMUNICATIONS, SECOND EDITION
By Charles Sippl

The marriage of telecommunications and computing has brought forth an offspring — data communications, complete with its own terminology. This dictionary provides a quick reference guide to data communications in a range of areas including personal and business telecommunications; office, value-added and local-area networks; cellular radio and paging systems; electronic mail and message systems; satellite services; voice technology; and fiber optics and laser communications.

Sippl has been editor and publisher of computer industry newsletters and the author of several computer and communications dictionaries.

Softcover, 532 pages, ISBN 0-470-20256-4, $21.95, Halsted Press, a Division of John Wiley & Sons, Inc., 605 Third Ave., New York, N.Y. 10158.

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Management gets the perks

From page 69

with on-line and data communications skills command about a 10% to 12% compensation premium over those with comparable experience in similar operating environments.

"More and more packages are giving on-line capabilities. More and more shops are gaining access to information instantaneously," he said. Professionals who "can allow one machine to talk to another have the hardest time leaving" an employer, McMahon added.

Those findings are echoed in a survey of compensation for data processing professionals in Southern California, conducted by Positive Support Review, Inc., a Los Angeles consulting firm.

That study found higher salaries and perks being provided to specialists in operating systems and data base administration as well as in data communications and, to a lesser extent, in on-line systems.

The perks include profit sharing, club memberships, company cars, trips, seminars and personal computers for home use. "We are seeing more and more firms paying high premiums to attract and retain the data processing talent they need," said John Clarke, a senior partner with Positive Support Review.

According to the survey, the perks also go to all senior data processing executives and, increasingly, to department and project managers. Clarke attributed the increasing popularity of perks to many companies' belief that they need information technology to maintain a competitive edge.

In a related development, McMahon of Consultants to Executive Management noted that with the supply of data processing professionals moving closer to the number in demand, it is increasingly important for job applicants to view data processing as a tool and to avoid jargon when communicating with users.

A well-rounded manager

He suggested that anyone interested in entering the information systems field aim to become a well-rounded manager, rather than "a pure technician who wants to code all day."

A third survey by the American Management Association has found that, on the average, companies hiring a $28,000-per-year computer programmer can expect to spend $8,900 just to relocate him.

The association's report, "Hiring Costs and Strategies," examines companies' expenses for employment agencies' fees, executive search firms' fees, referral awards, advertising, travel, lodging and entertainment.

Many companies expect to pay 25% of an employee's salary to an employment agency that places him and 30% to an executive search firm that does so, according to the report.

Such expenditures may be yielding more for employers. The study by Consultants to Executive Management found that the average stay of information systems personnel at companies seems to be lengthening from 18 months to about 24 months.

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CALENDAR

JULY 13-19

JULY 13-18, CHICAGO — **Guide 65.** Contact: Guide International Corp., 111 E. Wacker Drive, Chicago, Ill. 60601.

JULY 14-17, BOSTON — **Software Trends for Executive Planning and Strategy.** Contact: Software Institute of America, Inc., 8 Windsor St., Andover, Mass. 01810.

JULY 16-18, WASHINGTON, D.C. — **SNA Architecture and Implementation Seminar.** Contact: Communications Solutions, Inc., 92 S. Saratoga-Sunnyvale Road, San Jose, Calif. 95129.

JULY 17-18, PALO ALTO, CALIF. — **CD-ROM Product Development: What Does It Take?** Contact: Claudia Isaacoff, Information Industry Association, Suite 800, 555 New Jersey Ave. N.W., Washington, D.C. 20001.

JULY 20-26

JULY 20-23, TORONTO — **Directions at Toronto.** Contact: Cincom Systems, Inc., 2300 Montana Ave., Cincinnati, Ohio 45211.

JULY 21-22, SAN JOSE, CALIF. — **Computer-Aided Logistics Support.** Contact: Education Foundation of the Data Processing Management Association Seminars, Dept. CALS, P.O. Box 3608, 3420 Kashiwa St., Torrance, Calif. 90510. Also being held July 24-25 in Los Angeles.

JULY 23-25, BOSTON — **Microtrends '86, Education: Redirecting the Revolution.** Contact: Bobbi Hunt, International Communications Industries Association, 3150 Spring St., Fairfax, Va. 22031.

JULY 23-25, MORRISTOWN, N.J. — **Data Communications: Fundamentals and Beyond.** Contact: The American Institute, Carnegie Building, 55 Main St., Madison, N.J. 07940. Also being held July 30 to August 1 in Los Angeles; August 6-8 in Anchorage, Alaska; August 13-15 in Boston; and August 20-22 in Indianapolis.

JULY 24-25, ATLANTIC CITY — **Integrated Logistics Support.** Contact: TTS Seminars, c/o Technology Training Corp., Dept. ILS/LSA, P.O.

See CALENDAR page 75

Scouts pledge to go on-line

From page 69

supplying technical support, programming, customer service and assistance in determining hardware and software requirements.

Last March, a users group composed of 12 council representatives met for the first time. The group is expected to meet every six months to discuss systems needs and the problems of automating the councils. The members — two from each of six regions — are picked by regional directors.

The automation program began early last year. So far, about 100 of the 412 councils have acquired their own computer systems. Another 20 to 30 are expected to do so by year's end. The computer systems vary in power depending on the size of the council, which ranges from 1,000 to 76,000 members.

At present, all but one council with stand-alone systems use Texas Instruments, Inc. Business System 300A or 600A series minicomputers, according to Page Carwile, director of council information services.

The primary application for these systems is the organization's Membership Support System (MSS), a software program that was written in-house to compile scout membership data.

The New York City council has installed an IBM System/36 Model 5360, for which the headquarters recently developed MSS. Other councils are expected to follow suit. This summer, four to six small councils will act as beta-test sites for MSS running on generic IBM Personal Computer AT clones.

In the past, up to 130 councils used TI's Silent 700 terminals to dial into the headquarters' host computer, an IBM 4381, and access general ledger and fund-raising software. Those are being phased out in favor of the stand-alone systems, although about 80 of the Silent 700s remain in use.

Along with MSS, Boy Scout headquarters has developed or acquired applications in accounts payable, payroll, general ledger and fund-raising for councils using the TI systems. To date, only MSS is available for councils using the System/36 or PC AT clones. Additional applications are being developed for those systems, Carwile says.

To transmit membership data — the only data sent to headquarters — councils use the General Electric Information Services Co. (GEISCO) network. GEISCO collects a subset of all data transmitted during a day's time, then batch processes it for the IBM 4381 to add to its data base the next morning.

Larger quarters

Despite the need to keep expenses down, the information systems division will soon move the mainframe and peripherals from its headquarters' 15,000-sq-ft space to a 26,000-sq-ft facility across the street, according to James H. Rowe, director of data processing.

"We need a bigger machine room, as there is not enough space now to add anything, and other departments in the building can certainly use the space that the move will free up," Rowe says.

The IBM 4381 is "running at very high capacity" now, he adds, and a larger processor, most likely an IBM 3090, is being considered for installation in 1987. In the meantime, additional software applications, including camp management and inventory control, are being developed for the councils.

"Data processing people are bells-and-whistles people by nature," says Information Systems Director Spalter.

"We have a tendency to look at the newest and the brightest. But at Boy Scouts, we have to be careful to look at the underlying needs and at all the alternatives closely. Anything we spend in the national office, if we can't recover those costs, we wind up with fee increases. And that means less scouts."

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Box 3608, 3420 Kashiwa St., Torrance, Calif. 90510. Also being held July 28-29 in Orlando, Fla., and July 31 to August 1 in Washington, D.C.

JULY 24-25, SAN FRANCISCO — **Advanced Communications Architectures Seminar.** Contact: Communications Solutions, Inc., 992 S. Saratoga-Sunnyvale Road, San Jose, Calif. 95129. Also being held August 19-20 in Washington, D.C.

JULY 24-25, WASHINGTON, D.C. — **EDI Training Session.** Contact: TDCC, 1101 17th St. N.W., Washington, D.C. 20036. Also being held August 21-22 and September 25-26 in Arlington, Va.

JULY 27 TO AUG. 2

JULY 27-30, BOSTON — **Recognition Technologies Users Association Forum '86 Summer Session.** Contact: Recognition Technologies Users Association, P.O. Box 2016, Manchester Center, Vt. 05255.

JULY 27-31, ANAHEIM, CALIF. — **Third Annual Information Center Conference & Exposition.** Contact: Information Center Conference & Exposition, Weingarten Publications, Inc., 38 Chauncy St., Boston, Mass. 02111.

JULY 28-29, AVON, COLO. — **How to Manage Data and Information as a Resource.** Contact: Barnett Data Systems, 19 Orchard Way N., Rockville, Md. 20854.

JULY 28-30, RENO, NEV. — **1986 Summer Computer Simulation Conference.** Contact: The Society for Computer Simulation, P.O. Box 17900, San Diego, Calif. 92117.

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How info execs can get respect

From page 69

lead their organization into the age of end-user computing.

One consultant from a Big Eight accounting firm acknowledged the importance of avoiding jargon and understanding bottom-line needs. He said there are a lot of competent MIS managers around, "but they're so tied up in their jargon they scare off everbody."

But others who were questioned dwelt on the need to help users, a function that has rapidly grown in importance with the spread of personal computing.

The president of an MIS research center said he thinks it's time MIS managers listened to end users. For a long time, MIS managers felt they knew what turned on their users, he said. They expected users to shape their work to conform to MIS department systems, but users won't stand for that any longer, he explained.

MIS managers have acted as controllers rather than facilitators, interfering with users' work, said an MIS manager from a major Midwestern university.

"It would be like saying, 'I'm from the government, and I'm here to help you,'" he said.

Helping users boils down to making a contribution to the company's bottom line, according to an MIS support services manager for a utility.

In the process, it's important for MIS executives to avoid turf battles over computer operations, a software development manager cautioned, saying that these managers have to put corporate goals ahead of their department's goals.

Information systems managers might find some help for their efforts to address corporate needs from a suprising source — the demands of tightened purse strings, one manager noted. He said slimmer budgets have forced him to be more circumspect in justifying projects.

But the most important thing MIS executives must do to become more attuned to corporate needs is to examine their own weaknesses, the Big Eight consultant said. That might mean getting trained in hot business areas that they are not strong in, such as finance. But whatever it takes, "it's going to depend a lot on him and not on his company," the consultant said.

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For more information, contact Ed Marecki, Vice/President Sales, Computerworld Focus, 375 Cochituate Rd., Framingham, MA 01701-9171, (617) 879-0700. Or call your local Computerworld sales representative.

Issue: August 20 - Closing: July 11

COMPUTERWORLD FOCUS

Planning for fast growth

While David's Cookies is installing a personal computer network, managers of many other fast-growing small companies are usually so preoccupied with day-to-day problems that they rarely have time for the planning required to start and maintain computer operations, according to management consultants.

Many firms, small and large, usually do things backwards, says Eric Knutsen, vice-president for consulting services at Gartner Group, Inc. "They buy the hardware and then find a programming analyst or technical guy. They then call in a consultant who says, 'Let's make a plan!'"

What does proper planning entail? Knutsen says it means projecting systems requirements at least two years into the future.

Joe Scordato, president of Management Services Group, Inc. of West Nyack, N.Y., and president elect of the Independent Computer Consultants Association, suggests two sets of plans: a strategic one for computing needs over a five-year period and a tactical one covering a one- to two-year period.

Planning should also distinguish between functions performed by the information systems (IS) department and duties handled by end users. "That will determine how the IS department should be staffed," Knutsen says.

Picking appropriate software should precede hardware selection, since the software is key to estimating productivity gains, Knutsen says.

With the price of hardware descending rapidly, he adds that small companies should plan to purchase processing capacity in excess of their projected needs. "Hardware is the only bargain companies are going to get, so they should buy a computer as large as they can afford because they'll run out of capacity sooner or later," Knutsen explains.

Companies just beginning their computer operations should focus on automating functions critical to the company's mission rather than computerizing everything at once, he said. Small firms also should consider using plain-vanilla equipment.

— Alan Alper

David's Cookies selects net vendor

From page 69

patible application software. "They also have to be available for training and troubleshooting and offer a maintenance contract," he adds.

The firm is not adding an MIS manager right away, but Downing acknowledges one will be needed in the long term. "We can't justify an MIS person right now, but somewhere down the road, we'll need one."

NEW PRODUCTS

MS-DOS shell eases micro use

Peter Norton Computing, Inc. of Los Angeles has announced the Norton Commander, a $75 control and file management package aimed at hard disk-based IBM Personal Computers and compatibles.

The software was reportedly designed to assist users in executing some of the most common Microsoft Corp. MS-DOS commands, such as copying, deleting and renaming files.

According to the vendor, the utility package also contains many commands not found in MS-DOS. It can simultaneously display two disk directories, perform commands on selected groups of files, allow for instantaneous editing and viewing of files and simplify movements of files from one directory to another.

The Norton Commander places two working panels on the top left and right corners of the screen and a menu bar on the bottom of the screen, leaving the rest of the screen as usual.

Files listed in summary form

The directory panels include the name, extension and time or size of files. Files can also be listed in summary form. Additionally, files can be displayed according to time created, size or extension or sorted alphabetically.

The Norton Commander offers both one- and two-panel modes. One-panel mode is aimed at data and program access and leaves most of the screen clear. The two-panel mode is suited for disk maintenance operations such as file transfer.

A key feature of the Commander, a company spokesman said, is point and shoot, which allows users to point to something, either with a cursor key or a mouse, and "whatever is pointed at gets done." Another feature of point and shoot is that it enables users to tell the Norton Commander in advance that any time they work with a particular data file, they also want to work with a particular software application. Then that application will automatically boot along with the data file, according to the vendor.

Available now, the Norton Commander takes up 10K bytes of random-access memory.

Informer terminal debuts

Color portable workstation offers IBM 3274 emulation

Informer Computer Terminals of Laguna Hills, Calif., has introduced the Informer 208 color portable workstation that connects to an IBM 3270 communications network and is said to be functionally equivalent to IBM's 3274-51C controller and 3179 color terminal.

According to a company spokesman, the Informer 208 workstation offers full IBM 3274 and 3179 emulation using either IBM 3276 system network architecture/synchronous data link control or binary synchronous communications protocol.

Informer 208 color terminal

Each emulation utilizes direct RS-232C or dial-up connection to the mainframe through any one of six integral modem options. These built-in modem options include V.22 bis, 208B/V.27 and 201C/V.26. As an additional feature, each Informer 208 is said to include an external asynchronous ASCII printer port for use with Informer's Model 287 or other compatible asynchronous printers.

The Informer 208 color portable workstation features a high-resolution nine-in. color monitor and flip-down keyboard. The high resolution is achieved by the use of liquid crystal shutter technology that results in crisp characters with a flicker-free image and greater contrast, convergence and durability, the vendor stated.

The standard Informer 208 is priced at $2,995. Equipped with an optional V.22 bis integral modem, it costs $3,595.

The Informer 208 model is the newest addition to the Informer family that includes the Informer 211 Personal Computer adapter, a module that gives IBM Personal Computer, Personal Computer XT and AT users connection to IBM mainframes; the Informer 207, a 14-pound portable monochrome terminal; the 205, a compact data entry workstation with a 12-in. screen and the Informer 203, a nine-in. screen with the features of a full-size model.

Options such as integral modems, a built-in security feature and dual and triple emulation are available for the Informer 208 in any of five standard packages.

Novell software bridges LANs

Novell, Inc. of Orem, Utah, has announced the release of Netware Bridge Software, a product that allows communication between local-area networks (LANs).

Netware Bridge Software is said to allow a dedicated or nondedicated workstation on any LAN running Version 2.0 or higher of Novell's Advanced Netware operating software to support up to four like or unlike network interface cards. In addition, LANs will be able to support multiple bridges. With this product, the vendor stated, users on different LANs can communicate with each other and access each other's file servers.

The external bridging capability is an addition to the internal bridging inherent in Advanced Netware 2.0. However, Netware Bridge Software resides in a workstation rather than in the file server. According to a company spokesman, the internal and external bridge are similar but have different applications.

According to the vendor, Netware Bridge Software can act as a repeater to extend the recommended distance between the workstation and file server.

Netware Bridge Software is priced at $395, including software and user manual.

INSIDE

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Smaller chips increase space, savings on Ideassociates multifunction boards

Claiming increased space and cost economies, Ideassociates, Inc., of Billerica, Mass., has announced two add-in multifunction boards that use surface mount technology, which is said to save space by placing smaller chips closer together on both sides of the board instead of just on one side.

The company's All Aboard product is said to provide all the essential add-on functions for an IBM Personal Computer XT. The second product, Overboard, is a half-length graphics adapter that fits into the short slot of an IBM PC XT or AT.

All Aboard reportedly combines IBM's Enhanced Graphics Adapter (EGA) or IBM monochrome/color graphics with up to 2M bytes of expanded memory, a hard-disk controller, a serial port, a parallel port and a clock. Prices start at $545 and $795 for boards with monochrome/color graphics and EGA support, respectively. With expanded memory conforming to the Lotus/Intel/Microsoft Enhanced Memory Specification, the prices run $200 higher.

With monochrome/color graphics support, Overboard's price is $395. With EGA support, it costs $595. Deliveries are scheduled for July.

Luma picture phone bows

Transmits, receives stills over regular phone lines

Luma Telecom, Inc. of Santa Clara, Calif., has introduced Luma, a picture-transmission desktop telephone.

According to the vendor, Luma is said to send and receive black-and-white, freeze-frame, still-picture snapshots in one to five seconds over regular phone lines.

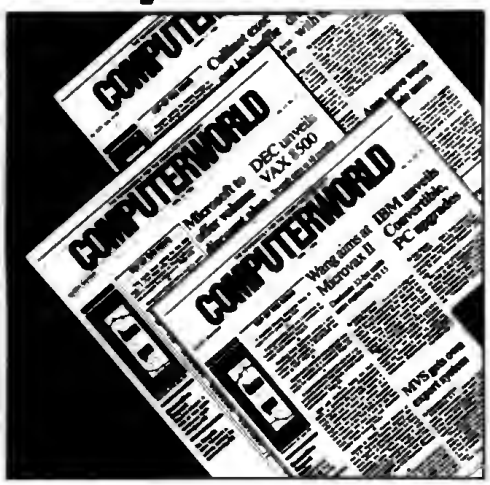
Luma, which is about the same size as an ordinary business phone, is said to weigh 8 lbs. Its electronic components, including the screen, camera and phone, are contained in one unit, priced at $1,450.

According to the vendor, to use Luma a caller selects a live, full-motion image then presses a button to freeze and transmit the picture.

In addition to its picture-transmission capabilities, Luma is said to include a number of operating features including hands-free calling and a screen-display directory that can hold up to 100 names and numbers.

Some options available for Luma include a video printer said to instantly reproduce screen images on paper and a variety of lenses, such as close-up and wide-angle lenses, for enhancing pictures of objects and graphics.

How to stay on top of the world of computers — and get a free gift in the process.



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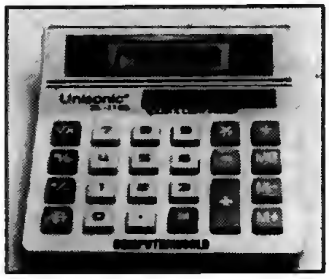

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SOFTWARE & SERVICES

Systems software

Software Express has ported its **Appgen** product line to National Semiconductor Corp.'s System V/Series 32000-based computing environment.

The Appgen line includes the Appgen applications generator and nine accounting applications, including a General Ledger, Accounts Receivable, Accounts Payable and Inventory/Order Entry, a query language and report writer and training tutorials.

The Appgen Applications Generator costs $6,000, and most applications cost $600.

Software Express, 7th Floor, 2925 Briarpark Drive, Houston, Texas 77042.

■

Datametrics Systems Corp. has released **Version 2.0** of its **Torch/Performance Management System** (PMS), a software package for use with Sperry Corp.'s Sperry 1100 computer systems.

Torch/PMS is said to produce a series of management and technical reports that describe the performance of the system, pinpoint problem areas and highlight system utilization trends for long-term planning purposes. Torch/PMS also provides scatter plots and performance reports, according to the vendor.

The price of the Torch/PMS ranges from $29,700.

Datametrics Systems, 9840 Main St., Fairfax, Va. 22031.

■

Hewlett-Packard Co. has introduced its **HP Teamwork/Structured Analysis**, a software program to help software engineers develop and manage software specifications.

The program is said to include a project library that serves as a central data base, a user interface that provides windows into the project library and an intelligent editor that can build data-flow programs.

The software is a companion product for the HP 6400 logic-development system.

The HP Teamwork/Structured Analysis costs $8,900.

HP, Inquiries Manager, 1820 Embarcadero Road, Palo Alto, Calif. 94303.

Applications packages

GSI Transcomm Data Systems, Inc. has announced its **Tolas Version 6.2** application software package.

Some of the features of Tolas 6.2 include a window of information that defines or lists processing options and on-line documentation capabilities. The natural language independence feature enables programmers to change the contents of the screen without altering the application program.

Tolas Version 6.2 is compatible with Digital Equipment Corp.'s line of VAX minicomputers.

Tolas Version 6.2 costs from $5,000 to $36,000 per module.

GSI Transcomm, 1380 Old Freeport Road, Pittsburgh, Pa. 15238.

FMT Associates, Inc. has introduced **Labels/3000**, a mail list and label system for the Hewlett-Packard Co. HP 3000.

The product consists of more than 24 programs for imprinting postcards, folder labels, shipping labels and Rolodex cards. Function keys support display record, add record, delete record, on-line Help, print screen and change function.

Labels/3000 also comes with a file maintenance program that removes duplicates and provides a list of possible duplicates. Linkage to other systems is provided through an intermediate ASCII file.

Labels/3000 costs $1,800.

FMT Associates, 6475 Fox Run Circle, Jupiter, Fla. 33458.

■

Sherpa Corp. has announced **Sherpa Data Management System** (DMS) for tracking and controlling a design project through its life cycle.

Sherpa DMS is a Digital Equipment Corp. VAX-based system said to be capable of both data management and process management functions. It can manage schematic diagrams, parts lists, design drawings and other design files. Other features are said to include record management, enforcing design methodologies and re-

Continued on page 80

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Continued from page 79
lease procedure control.

Sherpa DMS costs from $59,000 to $80,000.

Sherpa, 2355 Old Oakland Road, San Jose, Calif. 95131.

■

Hewlett-Packard Co. has introduced its **HP Printed Circuit Design System**, a computer-aided design package.

The HP Printed Circuit Design System couples printed-circuit board layout with electrical engineering design, manufacturing and testing. According to the vendor, it features automatic packing and placing, a component library, automatic routing and manufacturing and test links.

HP Printed Circuit Design System costs from $60,000 to $82,000.

HP, Inquiries Manager, 1820 Embarcadero Road, Palo Alto, Calif. 94303.

Utilities

Decision Technology, Inc. has announced its **Decision Analyzer** for use under CICS/VS, TSO or CMS.

The Decision Analyzer retrieves data directly from data bases, standard IBM file types or user-customized file types. It includes an ISPF-like editor for preparation of requests and review of the output.

The Decision Analyzer runs in fewer than 256K bytes of storage and the on-line query feature is designed so that only two or three I/O's are required to access and display any record in a several-million-record file.

The Decision Analyzer costs $48,000.

Decision Technology, 1020 U.S. Rt. 1, Princeton Corporate Center, Princeton, N.J. 08540.

■

Goal Systems International, Inc. has introduced **FAQS/VM** for spool and console file management.

FAQS/VM is said to be divided into two components: Viewsp, which provides enhanced capabilities for VM spool files, and Viewcon, which offers enhanced console file management including real-time scrolling and hardcopy file archiving to tape.

FAQS/VM provides extended color support for IBM 3179 and 3729 terminals. FAQS/VM operates under VM/SP or VM/HPO Release 3 and above on IBM and compatible 370, 4300 and 3000 computers.

FAQS/VM costs $4,760.

Goal Systems International, 5455 N. High St., Columbus, Ohio 43214.

■

Infodex, Inc. has introduced **Macrolock**, a utility for protecting proprietary programs under Data General Corp.'s AOS and AOS/VS operating systems.

Said to protect the software programs from unauthorized copying and tampering, Macrolock locks the software vendor's 32- or 16-bit product by permanently modifying the proprietary program file. A locked program will not work until unlocked by entering the correct password.

Macrolock costs $7,500. Macrolock II, an enhanced version for vendors who charge term license or software service fees, costs $12,000.

Infodex, 7000 Boulevard E., Guttenberg, N.J. 07093.

Process Software Corp. has introduced **VIOSA**, a software package for high-resolution RS-170 video image processing on Digital Equipment Corp. systems.

VIOSA is said to operate with the Datacube, Inc. QVG/AFA video imaging hardware. With a RS-170 resolution of 512 pixels vertically by 768 pixels horizontally, Datacube's QVG/AFA and VIOSA are said to combine to give any DEC VAX or PDP computer high-resolution video imaging capability.

According to Process Software, VIOSA can be used in computerized applications that make use of real-time video signals.

The cost of VIOSA ranges from $695 to $895, and it is available for immediate delivery.

Process Software, P.O. Box 746, Amherst, Mass. 01004.

Levi, Ray & Shoup, Inc. has announced its **VPS Monitor and Control Facility** (VMCF) command interface for its VTAM Printer Support System (VPS).

VMCF is said to add full-screen, menu-driven command entry facilities for controlling both local and remote printing on the IBM 3270 family of printers in an IBM MVS environment.

According to the vendor, VMCF gives VPS users full-screen JES2 queue manipulation capabilities, including the ability to change the characteristics of any given output group.

The VPS software, which includes the VMCF facility, is priced at $11,000. The CICS-based VMCF facility is priced at $2,500.

Levi, Ray & Shoup, 2387 W. Monroe, Springfield, Ill. 62704.

• **Chi/Cor Information Management, Inc.** has announced its **Report Routing System** for expediting the report routing capabilities of systems in multiorganizational and decentralized operating environments.

The system provides for the distribution of one or more copies of all or a part of a report to different people in a single location or in remote locations. The Report Routing System allows entire reports or specific pages to be selectively routed to one of several output queues. Input to the Report Routing System is a standard print image file.

The Report Routing System runs on IBM mainframes under OS/MVS, DOS/VSE and VM/SP.

It costs $8,000.

Chi/Cor Information Management, 10 Riverside Plaza, Chicago, Ill. 60606.

What's missing from this picture?

MICROCOMPUTERS

Software applications packages

Hewlett-Packard Co. has introduced **Graphics Gallery**, graphics software for its Vectra personal computer as well as IBM Personal Computers and compatibles.

Graphics Gallery consists of two programs. The Drawing Gallery includes 15 text fonts and allows users to create, draw and edit business graphics, including text charts, organization charts and flow diagrams.

The Charting Gallery permits users to originate pie, bar and line charts from original data or data from other software programs.

Charts developed in Lotus Development Corp.'s 1-2-3 and Symphony programs can be integrated into the Charting Gallery.

The Drawing Gallery costs $395, and the Charting Gallery costs $295.

HP, 1000 N.E. Circle Blvd. Corvallis, Ore. 97330.

■

Samna Corp. has announced a version of its **Samna+** office automation software program for the AT&T Unix Personal Computer 7300.

Samna+ is a document processing package that combines word processing and spreadsheet applications.

New features that take advantage of the AT&T Unix System V operating system include support for six different AT&T terminals and terminal emulations, windowing applications as well as toggling between Samna+ and the PC 7300 User Agent program, according to the vendor.

Samna+ is priced at $745.

Samna, 2700 N. E. Expressway, Atlanta, Ga. 30345.

Software utilities

The Software Bottling Co. has announced **Flash-Up Windows**, a memory-resident utility that allows users to automatically create menu and Help windows.

According to the vendor, windows created using Flash-Up Windows' window editor can be incorporated into most software programming languages.

Flash-Up Windows is said to provide an interface that can be used for almost all of a programmer's applications.

The Flash-Up Windows is priced at $75.

Software Bottling, 6600 Long Island Expwy., Maspeth, N.Y. 11378.

■

American Computer & Peripheral, Inc. has announced the **386 Translator**, a software development tool.

The 386 Translator is said to plug into the Intel Corp. 80286 CPU pin grid array socket of an IBM, American AT or compatible to transform the system into an Intel 80386 programming environment.

The 386 Translator is priced at $395 without the Intel 80386 chip and $895 with the 80386 chip.

American Computer & Peripheral, 2720 S. Croddy Way, Santa Ana, Calif. 92704.

■

M/H Group has announced its **Archive-Link** software, which provides disk-to-disk document conversion for IBM Personal Computers and compatibles.

According to the vendor, Archive-Link converts documents stored on Wang Laboratories, Inc. Office Information System or VS 5¼-in. archive disks to IBM document formats, including Ashton-Tate's Multimate, IBM's Displaywrite, Wordperfect Corp.'s Wordperfect, Wordpro International's Wordstar and Office Solutions, Inc.'s Officewriter document formats.

The Archive-Link technique is said to provide clean, editable documents after conversion. Format lines, word wrap, underscoring, superscript and subscripts are preserved in the conversion.

Archive-Link is priced at $395.

M/H Group, 222 W. Adams, Chicago, Ill. 60606.

Software data base management systems

Unify Corp. has announced that its **Microsoft C Interface** will be included with every development license of its Unify data base management system for Microsoft Corp.'s MS-DOS.

The Microsoft C Interface has more than 100 routines that will allow programmers to reach all parts of the DBMS, from high-level screen and menu handlers to the lowest level data management access.

The DBMS development license, including Microsoft C for MS-DOS, is priced at $995.

Unify, 4000 Kruse Way Place, Lake Oswego, Ore. 97034.

■

Digital Matrix Services, Inc. has announced its computer-aided design product **Digicad** and a graphics relational data base manager **Digibase**.

Digicad supports 12 different line styles and a variety of shading and traces. It allows one monitor to act like six independent monitors. It also allows the user to size drawings by positioning them on the paper.

Digibase works with both text and numeric data. It allows graphic images such as pie charts and entire floor plans to be stored and retrieved.

Both products run on IBM Personal Computers, Personal Computer XTs or ATs. Together, they cost $2,500. Digibase alone costs $1,000.

Digital Matrix Services, 1275 Sweeten Creek Road, Asheville, N.C. 28803.

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IBM* is a registered trademark and IBM Personal Computer-AT™ is a trademark of International Business Machines Corporation. ©1986 COMPAQ Computer Corporation, all rights reserved.

COMPAQ

It simply works better.

Lotus Development Corp. has announced the **Personal Engineering Resource Directory**, a list of third-party products that work with 1-2-3 or Symphony.

The directory includes descriptions of software and hardware targeted at scientists and engineers, along with data acquisition hardware and software. Listings include product pricing, vendor names and addresses, and hardware and software requirements.

The directory is free. The next version will be out this fall.

Lotus Development Corp., 161 First St., Cambridge, Mass. 02142.

Auxiliary equipment

Network Technologies, Inc. has introduced the **Montest-25K**, a portable video generator for testing the AT&T Personal Computer 6300 color or monochrome monitors.

The Montest-25K is battery powered. It features four patterns and generates red-green-blue, horizontal and vertical sync, transistor-to-tranistor logic compatible signals. Features include a horizontal scanning rate of 25.8 kHz, a vertical rate of 59.8Hz and 400 displayed lines.

The Montest-25K is priced at $199.95.

Network Technologies, 19145 Elizabeth St., Aurora, Ohio 44202.

EKD Computer Sales & Supplies Corp. has announced **Teleswitch**, a remote-, phone- or modem-activated power-control device for microcomputers.

Teleswitch is said to enable a remote, password-authorized caller to turn on a powered-down personal computer or microcomputer and peripherals at any time from anywhere. A time-delay circuit will turn the power off five minutes after the caller gets off the line.

Teleswitch is priced at $229.

EKD Computer Sales & Supplies, 764 Middle Country Road, Selden, N.Y. 11784.

COMMUNICATIONS

Controllers

Digital Controls Corp. has introduced **Octagon**, a peripheral matrix switch for data channel reconfiguration.

Octagon is said to be field expandable from 4- by 4- to 8- by 8-matrix capacity. An optional secondary microprocessor is said to provide on-board intelligence to the switch, freeing the switch console to work with other applications.

According to the vendor, some of the features that come with the microprocessor options include a channel activity log and an electronic mailbox that reportedly stores user-generated messages either on a personal or global basis.

The cost of the Octagon matrix switch is $19,500. Lease options are also available.

Digital . Controls, 3495 Newmark Drive, Miamisburg, Ohio 45342.

Protocol converters

Dynapac Syatems has announced the **Hostpad** packet assembler/disassembler software option said to enable non-CCITT X.25 hosts to connect directly into a packet switching exchange (PSX) packet switch.

Hostpad works with the PSX for asynchronous hosts accessing X.25 networks and operates with an 8-port RS-232-C card to upgrade the PSX node for the packet assembler/disassembler.

With the Hostpad option, the PSX performs such functions as packet switching, network control and non-X.25 host interface.

The modular Hostpad option costs $1,000. Each 8-port RS-232-C card costs an additional $1,850.

Dynapac Systems, 5350 Shawnee Road, Alexandria, Va. 22312.

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Software

Bramalea Software Systems has announced **Netmail**, a combination electronic mail and information transporter for Prime Computer, Inc.'s Prime computer network.

Netmail is used to send messages and files from one Prime user to another. As an electronic mail system, Netmail's capabilities include distribution lists, registered and/or confidential mail, automatic reply addressing, filing and text editing.

Netmail costs $7,000 for the full network version, and a single-node version costs $2,000.

Bramalea Software Systems, 1867 Yonge St., Toronto, Ont., Canada M4S1Y5.

■

Telenex Corp. has announced **Autoscope**, a CCITT X.25 emulation package said to eliminate the need for user programming and to automatically interact with an X.25 network.

The X.25 emulator interacts with the user through the keyboard and formatted screens. The screens provide selection of all parameters and run-time options. According to the vendor, each state within the protocol is reportedly verified while the user directs the flow of events. A user can select an address, place a call and once the call is established, the emulator sends data packets to the selected address.

The Autoscope X.25 emulation package costs $1,500.

Telenex, 502 Pleasant Valley Ave., Moorestown, N.J. 08057.

■

Arkansas Systems, Inc. has announced its **Path-Thru** software and hardware for protocol conversion and communications control.

Path-Thru is said to enable IBM 3270 bisynchronous terminals to operate attached to IBM System/36 and 38 computers and optionally pass through the System 30 machines to access resources on IBM mainframes.

Path-Thru includes Arkansas System's Path II IBM Personal Computer-based protocol converter and communications controller and IBM 3270 emulation software running on the System/36 and 38.

Path-Thru costs $8,950.

Arkansas Systems, 8901 Kanis Road, Little Rock, Ark. 72205.

Multiplexers/Modems

The Remington Rand Corp. has announced its **Model 1200** intelligent modem.

The direct connect, stand-alone Model 1200 allows personal computers to communicate in full- or half-duplex mode over ordinary telephone lines. It features Hayes Microcomputer Products, Inc. compatibility and a data transfer rate of 1,200 or 300 bit/sec.

Other features include autodial and answer, automatic redial, real-time clock, busy signal detection, front panel diagnostic indicators and an internal power supply. It is Bell 212A and 103 compatible and works with computers equipped with RS-232 interfaces.

The Model 1200 modem is priced at $399.

Remington Rand, 6395 McDonough Drive, Norcross, Ga. 30093.

Promodem 2400, a modem said to operate at 2,400, 1,200 and 300 bit/sec. is being offered by **Prometheus Products, Inc.**

Promodem 2400 has a plug-in communications buffer card option that allows it to send and receive messages even if the computer is busy or turned off. A second option is a 12-char., front-panel alphanumeric display that functions as a clock when the modem is idle and indicates dialing status when the modem is in use.

Standard features include autoanswer and dial, Hayes Microcomputer Products, Inc. compatibility, tone or pulse dialing and call progress monitoring.

Promodem 2400 costs $595. The communications buffer costs $149, and the alphanumeric display is $99.

Prometheus Products, 4545 Cushing Pkwy., Fremont, Calif. 94538.

Local-area networks

The **Destek Group** has released **Desnet BIOS**, an IBM Netbios-compatible local-area network for Microsoft Corp. MS-DOS and IBM PC-DOS.

Desnet BIOS features language interfaces, network clocks and remote loaders. Desnet BIOS includes 2M bit/sec. carrier sense multiple-access collision detection protocols for S-100, IBM Personal Computer, Personal Computer XT and Intel Corp.'s Multibus products. It includes a Personal Computer AT bus network board that utilizes the full 16-bit transfer capabilities of the IBM PC AT and the IBM RT Personal Computer.

The Desnet BIOS costs from $600 to $800 per node for hardware and from $100 for software.

Destek Group, 830 E. Evelyn Ave., Sunnyvale, Calif. 94086.

Test equipment

Northern Telecom, Inc. has added the **Datascope 2000** portable data line monitor and protocol analyzer to its Datascope product line.

Datascope 2000 is said to operate at speeds up to 19.2K bit/sec. in full-duplex mode, allowing the operator to look simultaneously at send and receive data. The unit has 800K bytes of storage on a 3½-in. floppy disk and a 192K-byte input buffer.

The Datascope 2000 unit has a RS-232 serial communication port and a parallel printer port. It automatically decodes most protocols, including asynchronous, bisynchronous, CCITT X.25 and IBM Systems Network Architecture.

The Datascope 2000 costs $3,650

Northern Telecom, 8000 Lincoln Drive E., Marlton, N.J. 08053.

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Robin Schwartz
Employment and
Employee Relations Manager
McCormack & Dodge
Natick, MA

Robin Schwartz is Employment and Employee Relations Manager for McCormack & Dodge, a software company based in Natick, Massachusetts. She is responsible for recruiting people for the company's home office as well as its seven regional offices across the country. And earlier this year when Robin was looking for software applications sales and support people, she chose to run an ad in Computerworld.

"*I had numerous openings for positions across the country. From a cost-efficiency standpoint, Computerworld seemed like the logical choice,*" says Robin. "*But before finalizing my decision, I did a little investigating. I talked to our sales managers here at McCormack & Dodge — and they all agreed. The #1 place to recruit qualified computer professionals nationally is Computerworld. To keep in touch with what's going on in the industry, people have to read Computerworld,*" she explains.

McCormack & Dodge is enjoying national visibility as a result of the ad, but, more importantly, Robin is quite pleased with the responses. "*My people were right. We placed the ad in the beginning of the year and received tremendous response via our two-day hot line (800 number). And since we are still getting resumes, Computerworld obviously has a long life cycle through its pass-along circulation,*" she adds.

"*The quality of the responses has made our ad placement more than worthwhile,*" concludes Robin. "*The professionals responding to our ad are experienced, not just job changers. We are getting in touch with just the people we need to reach.*" In fact, according to Robin, "*Quite a few of the positions are already filled. Thanks to Computerworld!*"

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NEW PRODUCTS/COMMUNICATIONS

Auxiliary equipment

L-COM Data Products has announced its **Baluns** coaxial eliminator for computer system expansion.

According to the vendor, up to four terminals can be added to the IBM 3270 using Baluns twisted pairs instead of cables. Baluns is said to allow transmission of data up to 1,000 ft without performance degradation. Baluns is installed by use of screw terminals or RJ-11 connectors.

The CF-11 Balun is priced at $44.50.

L-COM Data Products, 1755 Osgood St., North Andover, Mass. 01845.

SYSTEMS & PERIPHERALS

Turnkey systems

Identix, Inc. has introduced its **IDX-10** identity verification system.

IDX-10 is a compact terminal that contains a patented fingerprint reader and intelligent hardware for fingerprint analysis. The IDX-10 allows access when a user's fingerprint matches a reading of the fingerprint stored in the host computer's memory. The system also maintains an audit trail of all access attempts and the results.

The host for the IDX-10 terminal is an IBM Personal Computer XT enhanced with printed-circuit boards and proprietary software. The IDX-10 terminal costs $7,500, and the host system also costs $7,500.

Identix, 2452 Watson Court, Palo Alto, Calif. 94303.

■

Recognition Equipment, Inc. has announced **Tartran Automated Lockbox Systems** (TALKS).

According to the vendor, TALKS allows a financial institution to offer customized processing and quick response to customer requests, changing market demands and geographic needs without making major changes to established work flows. TALKS provides enhanced error detection and centralized account management.

The TALKS system includes the Tartran data capture system, six workstations, a printer, TALKS data capture software and IBM 3780 communications.

The TALKS system is priced at $100,000.

Recognition Equipment, P.O. Box 660204, Dallas, Texas 75266.

Processors

Data Translation, Inc. has introduced the **DT1407** analog I/O board and the **DT1403** digital-to-analog board for VMEbus.

The DT1407 has a 16-bit, 100-kHz analog-to-digital subsystem with 4 differential inputs. The DT1407 also includes two 12-bit, 125-kHz digital-to-analog converters, an on-board programmable clock and 16 lines of digital I/O organized as two 8-line ports. The DT1407 costs $2,765.

The DT1403 is a digital-to-analog board with two or four 16-bit digital-to-analog converters. With two 16-bit digital-to-analog converters, it costs $1,400, and with four converters, it costs $2,095.

Data Translation, 100 Locke Drive, Marlboro, Mass. 01752.

Graphics systems

Adage, Inc. has announced **Ruggedized LEX 90**, a version of its **LEX 90** graphics display system.

Ruggedized LEX 90 is said to provide high-resolution color graphics, alphanumerics and imagery data capabilities. Features include a 1,280- by 1,024-pixel resolution and a 30Hz or 60Hz display. Also featured are true color functionality, virtual windows technology, dual resolution and two-dimensional transformations.

The system consists of a rack-mounted graphics display processor and a color monitor.

The display processor is priced from $19,495 and the ruggedized color monitor from $4,995.

Adage, One Fortune Drive, Billerica, Mass. 01821.

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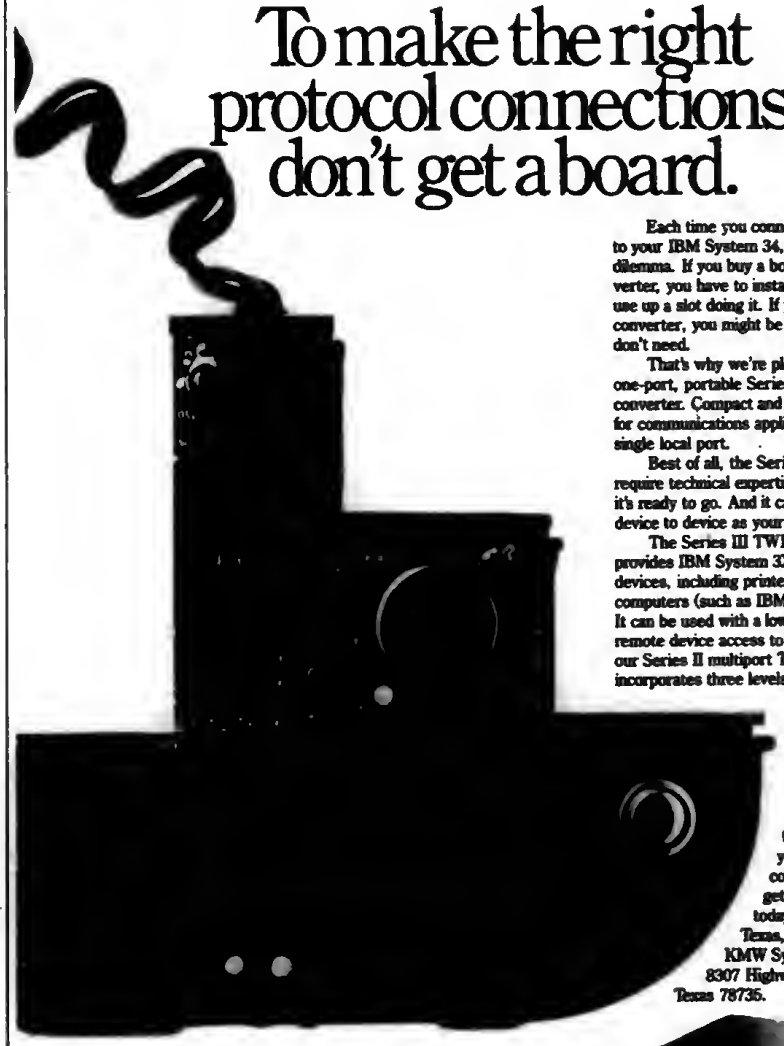

Each time you connect a PC or peripheral to your IBM System 34, 36 or 38, you face a dilemma. If you buy a board level protocol converter, you have to install it yourself — and use up a slot doing it. If you buy a multiport converter, you might be paying for ports you don't need.

That's why we're pleased to announce our one-port, portable Series III TWINAX protocol converter. Compact and affordable, it's perfect for communications applications that require a single local port.

Best of all, the Series III converter doesn't require technical expertise. Simply plug it in and it's ready to go. And it can be moved easily from device to device as your needs dictate.

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Terminals

Lear Siegler, Inc. has announced the **ADM 1000** and the **ADM 2000** VDTs.

The ADM 1000 features a 14-in. tilt-and-swivel monitor, available in green or amber. It offers seven programmable keys, shiftable for 14 functions. Other features include basic editing capabilities, block graphics, line drawing characters and a program mode for displaying all data received from the host.

The ADM 2000 is said to provide windowing capability and 16-level function key memory. It features dual host ports, allowing users to run different applications and terminal emulations simultaneously in up to 15 overlapping windows.

The ADM 1000 costs $399, and the ADM 2000 costs $699.

Lear Siegler, 901 E. Ball Road, Anaheim, Calif. 92805.

■

Lear Siegler, Inc. has enhanced its **Model 7105** and **7107** color graphics terminals.

Both models now feature Tektronix, Inc. 4105 and 4107 terminal compatibility as well as 640- by 480-pixel resolution, simultaneous display of 15 colors from a palette of 4,096, 15K- by 15K-byte virtual address space, simultaneous displays of up to four separate windows and independent color and alphanumerics.

The Model 7105 provides pixel zoom and pan. The Model 7107 offers true zoom and pan and local two-dimensional transformation.

Model 7105 costs $2,995, and Model 7107 costs $3,995.

Lear Siegler, 901 E. Ball Road, Anaheim, Calif. 92805.

Printers/Plotters

QMS, Inc. has introduced the **QMS-Smartscript 800**, **QMS PS-2400**, **Lasergrafix 1500** and **Smartwriter 150** laser printers.

QMS Smartscript prints at 8 page/min. It functions as a QMS Smartwriter or as support for the vendor's Postscript page description language for desktop publishing. Available in September, it costs $8,995.

The QMS PS-2400 is said to print 24 page/min with 13 resident fonts, and it also supports Postscript. Available in August, it costs $29,995.

Lasergrafix 1500 is a desktop 15 page/min, full-page bit-map printer for printing graphics. Available in September, it costs $11,995.

The Smartwriter 150 features 15 page/min print speed with 19 resident fonts. Available in November, it costs $6,995.

QMS, P.O. Box 81250, Mobile, Ala. 36689.

■

Analog Technology Corp. has introduced **Model 20/20**, a nonimpact, thermal transfer line printer.

Model 20/20 is said to generate horizontal or vertical Code 39 at 9.4 char./in. and 47 in./min. The printer has a bidirectional dual sprocket feed for pin-feed continuous forms. The Model 20/20 includes such features as automatic number field incrementing, line box and form drawing, automatic horizontal and vertical spreading as well as fill-in-the-blanks file merging.

The Model 20/20 is priced from $5,030 to $6,700, depending on quantity.

Analog Technology, 1859 Business Center Drive, Duarte, Calif. 91010.

■

Analog Technology Corp. has released **Model 195BR**, a bar-code label printing controller for Texas Instrument, Inc.'s 810 RO printer.

Model 195BR, said to provide verification of bar codes as they are printed, sends a true-or-false verification or the decoded character string to the host computer, forces the printer off-line and voids out the bar code that was rejected.

A noncontact, infrared bar-code scanner that is mounted on the printhead carriage rides back and forth and scans the bar codes as the paper passes the scanner.

The Model 195BR costs from $2,250 to $2,495, according to the vendor.

Analog Technology, 1859 Business Center Drive, Duarte, Calif. 91010.

Power supplies

Alpha Technologies, Inc. has announced its **Alpha 500** uninterruptible power source.

Alpha 500 is said to provide a 500W backup source for microcomputers, telephone systems and other electronic equipment.

Alpha 500 reportedly has such standard features as front-panel lights for all functions, a warning alarm that sounds before batteries are fully discharged, standard 30 minutes of backup time and easy mounting.

According to the vendor, there is no on/off switch, so the unit cannot be accidentally shut off.

Alpha 500 is priced at $595.

Alpha Technologies, 3757 Alpha Way, Bellingham, Wash. 98225.

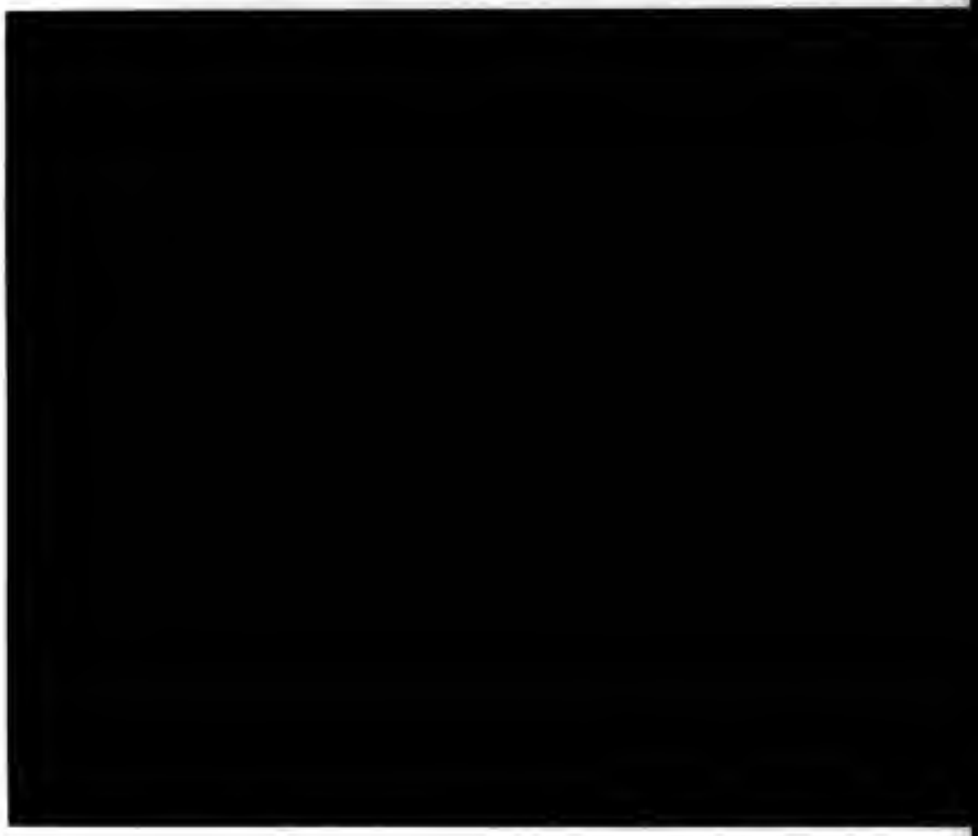
Components

MDB Systems, Inc. has introduced its **RCS-P**, a rack-mountable ruggedized peripheral subsystem for users of Digital Equipment Corp. Q-bus and Microvax II computers.

The chassis contains a combination of two fixed and/or removable peripheral devices. Peripherals supported include DEC's RD53 71M-byte disk, RX50 floppy disk and TK50 cartridge tape unit. Disk drives from companies such as Siemens AG, Fujitsu Ltd. and Control Data Corp. are also supported.

The peripheral device controllers

With Diskit 2 Plus, this is what intruders



available include DEC's RQDX or MDB's MLSI or MV-ESDI-RM.

List prices for the RCS-P with controllers start at $19,630.

MDB Systems, 1995 N. Batavia St., Orange, Calif. 92665.

Auxiliary equipment

Digital Equipment Corp. has introduced the **VT220 motorized stand** and the **Tilt/Swivel base** video monitor accessories.

The VT220 motorized stand is a full-size, automatic stand with a manually height-adjustable keyboard table and electronically controlled monitor height.

The monitor platform enables the user to move the terminal left or right.

The VT220 motorized stand is priced at $349.

The Tilt/Swivel base for personal computers and VT200 terminals allows the user to adjust the terminal up, down and sideways.

The Tilt/Swivel base is priced at $99.

DEC, Continental Blvd., Merrimack, N.H. 03054.

PRICE REDUCTIONS

Lear Siegler, Inc. has announced price cuts on its **ADM 220 and ADM 364** VDTs.

Both the ADM 220 and ADM 364 offer standard features such as a full tilt-and-swivel monitor, a detached, low-profile DIN standard keyboard, split screen, double-high and double-wide line attributes and vertical or horizontal scrolling.

The terminals' three-level function keys provide 45 functions, including 15 fixed and 15 programmable, plus an additional 15 programmable, nonvolatile functions.

Both the ADM 220 and the ADM 364 now cost $729.

Lear Siegler, 901 E. Ball Road, Anaheim, Calif. 92805.

■

Digilog, Inc. has reduced the price of its **Digilog 300 data analyzer**.

Digilog 300 plugs directly into data lines for automatic determination of line protocol, speed, code and parity.

Features of Digilog 300 include an interface lead graphics and a decoder that decodes each frame of the protocol and gives the English language interpretation.

Digilog 300 operates at 19.2K bit/sec. and features a full typewriter-style keyboard, printer interface, 400K bytes of on-line capture storage and a full 24-lead RS-232 breakout panel with 17 LEDs for interface monitoring, reconfiguration and 800K disk drive.

Digilog 300 now costs $3,995.

Digilog, 1370 Welsh Road, Montgomeryville, Pa. 18936.

■

TAT Graphics Group, Inc. has dropped the prices of its **Sextant 819, Sextant 1019, Sextant 815** and **Sextant 614A** display subsystems.

The Sextant 819 subsystem, which includes a 19-in. monitor and the Galaxy G800 graphics display controller board, now costs $4,495.

The Sextant 1019 display subsystem, which includes a 19-in. monitor and the Galaxy GX1024 graphics display controller board, now costs $4,695.

The Sextant 815, including a Galaxy G800 controller board and a 15-in. monitor, costs $3,995.

The Sextant 614A display subsystem consists of a 14-in. monitor and the G640 graphics card. It costs $2,195.

All four subsystems have 16 colors displayable out of a palette of 4,096.

TAT Graphics Group, Building E, 1270 Lawrence Station Road, Sunnyvale, Calif. 94089.

■

Software Recording Corp. of America has reduced the price of its Automentor software product.

Automentor allows users to create interactive tutorials, training sessions and user support aids as well as develop software and hardware demonstrations, presentations and applications prototypes. It features bit-mapped graphics capabilities that support IBM Color and Enhanced Graphics Adapters.

Automentor is now priced at $495.

Software Recording, Suite 130, 24 Professional Center Pkwy., San Rafael, Calif. 94903.

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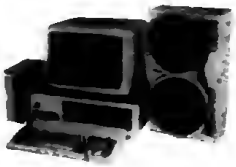
for the IBM PC/XT/AT



Now you can exchange data files between your IBM PC/XT/AT and any mainframe or minicomputer using IBM compatible 1600 or 3200 BPI 9-track tape. Unit can also be used for disk backup and archival storage. Transfer rate is one megabyte per minute on PCs and 100% compatibles. Subsystems include 7" or 10 ½" streaming tape drive, tape coupler card and DOS compatible software.

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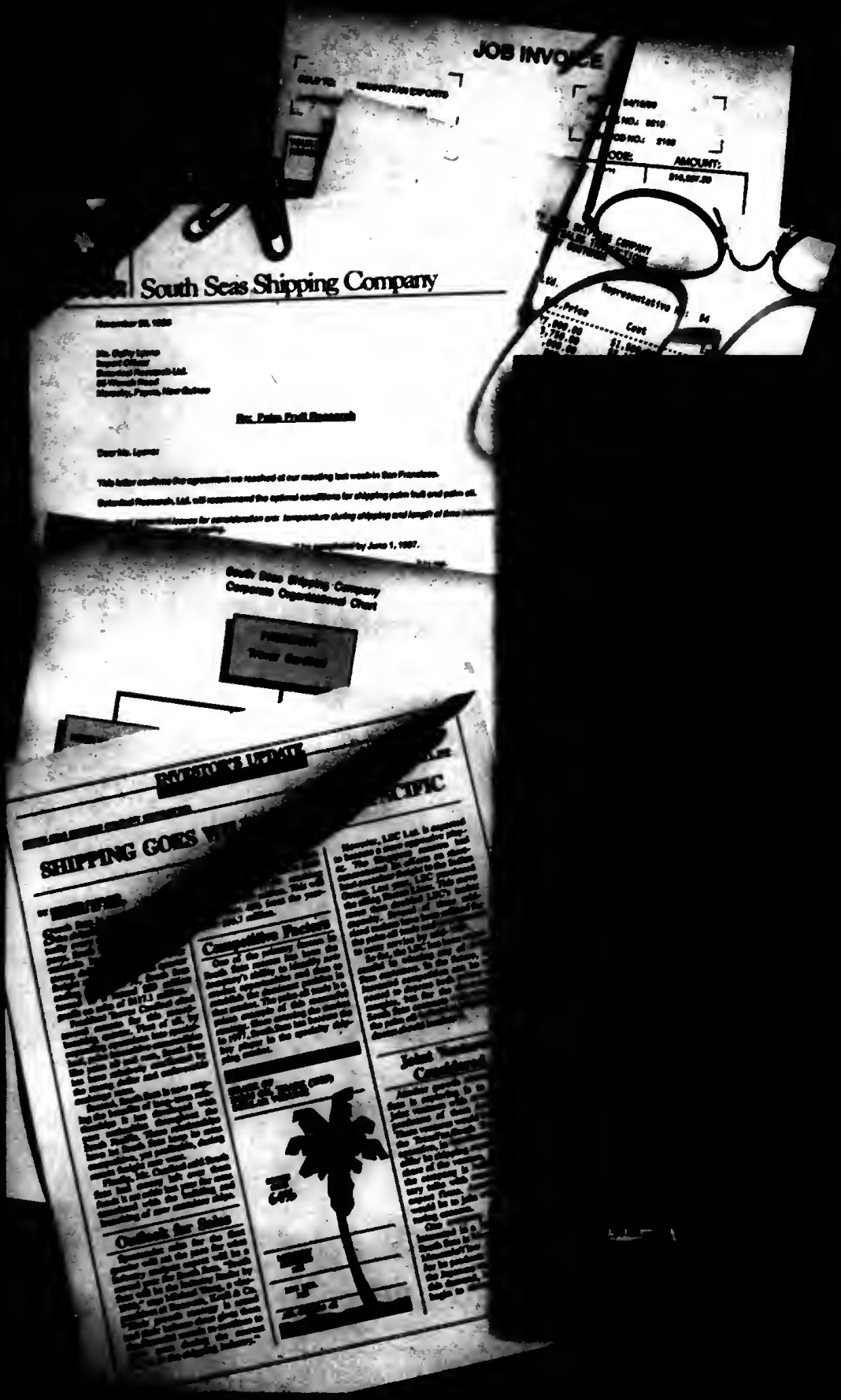
JOB INVOICE
South Seas Shipping Company
Corporate Organizational Chart
SHIPPING GOES

COMPUTER INDUSTRY

Section begins on page 118

Anderson fights to import Nixdorf's European success to U.S.

President says service, support foundation laid

By James Connolly

LAS VEGAS — As well known as the name of Nixdorf Computer AG may be in Europe, the company that does business in the U.S. as Nixdorf Computer Corp. is still fighting to establish itself in the domestic market.

Now in his fourth year as president of the U.S. operation, Michael H. Anderson recently discussed reasons that European success has not migrated to the U.S.

"Because it isn't time," Anderson said at the 1986 National Computer Conference, where Nixdorf introduced new models and enhancements for the firm's minicomputer and small mainframe product lines. "We had to build a foundation first. And it is that kind of long-term thinking that says, 'Make sure the cart is behind the horse.' "

Protecting installed base

Anderson described the steps the company has taken to protect its installed base in market areas such as data entry, while building a nationwide service organization that can support growth in vertical markets, such as retail and banking.

"If we had tried to take on a large retail network here in the U.S. without the four years we have spent developing a service network, then we would likely have a dissatisfied customer, which would then say that we have difficulty doing business on a large scale," Anderson said. "All of those pieces would have fallen apart."

Anderson, a former marketing and sales executive for IBM, said IBM's announcement of new processors and connectivity tools for the IBM System/36 and System/38 on the same day Nixdorf made its most recent announcements was not a threat to Nixdorf.

NIXDORF COMPUTER

In comparing Nixdorf's machines to the System/36, he emphasized his firm's offering of systems down to small, micro-based CPUs. "Our intention is that the software that is written for the lowest end, micro-based product will run all the way up to the largest system," he said. "So our strategy is not obsolescence. Our strategy is continuity. I don't really worry too much about what IBM does with its System/36, 38 line. They are still dead-ending their product set, and you don't have the safety valves to be able to move up."

Nixdorf's announcements included the 8810 Micro 35, a competitor for the IBM Personal Computer XT. But Anderson maintained that Nixdorf is not trying to be a major player in the microcomputer market.

"Our installed customers want PC functionality at a workstation, but they don't want to give up what they already have with Nixdorf, which is the interface with all of our software," Anderson said. "So it is not an announcement that Nixdorf is getting deeper and deeper into the PC game and that you can expect to see our products on the shelves of Sears Roebuck & Co."

Anderson said that Nixdorf offers personal computers to make its systems more attractive by adding function. He predicted that the company will add an IBM Personal Computer AT competitor soon.

But the Waltham, Mass.-based U.S. operation will wait until 1987 to bring to the U.S. a high-end system that Nixdorf is selling in Europe.

That system, the 8890D, was designed to be compatible with the IBM 4381. It will require more work on its operating system before being offered to the U.S. market, in which Nixdorf's existing Nixdorf Nidos-based 8890s compete with the DOS/VSE-based IBM 4361s.

One decision yet to be made is whether the 8890D should run IBM's MVS rather than just the DOS-based software that is the focus of the company now.

"Our system is not an MVS-class machine," Andersoo said. "Amdahl Corp., IBM and others are operating in a mode that is not Nixdorf's niche in this overall marketplace.

"Ours is total systems from us, which means the hardware, software and the service and support," Anderson added. "We think there is a large number of users of 4300-class systems who are tired of having their investment in software, especially DOS/VSE, jeopardized."

Non-MVS users a rich market

Anderson says he believes there is a base of users who do not want to migrate to MVS, and that group represents a rich market for Nixdorf.

Anderson said he expects Nixdorf's 10-year record of worldwide revenue growth to continue despite this year's sudden death of company founder Heinz Nixdorf.

"He was a charismatic leader who had built the company from nothing," he said. "But all customers, especially the North American customers, will now see an even stronger Nixdorf."

He noted that Nixdorf's founder's successor, Chairman Klaus Luft, and others on the board of directors, have extensive experience in dealing with the North American operations.

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China Computerworld represents the first joint venture in the People's Republic of China between a foreign publishing company, CW Communications/Inc., and the government. *China Computerworld* is published twice a month and reports on computer hardware and software technologies. The total paid circulation is 70,000. Total readership is estimated at 2,000,000 copies with total distribution of 100,000 copies per issue.

And, now there's *China Computerworld Monthly*, a sister publication to *China Computerworld*, that provides 30,000 readers with even more in-depth analysis of the market.

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Token-ring net developer strives to enforce patent protection

Lowers royalty fees, tracks down net vendors

By Stanley Gibson

NEW YORK — Nineteen years after he devised the first token-ring network in Sweden, Olof Soderblom finally appears to be making headway with network equipment vendors.

The developer of a token-ring networking technology has lowered his asking price for patent compensation and has signed royalty agreements with seven U.S companies and a total of 16 companies worldwide.

Willemijn Holding Co., the Rotterdam, Netherlands-based company in charge of asserting Soderblom's patent claims, recently announced at a New York press conference that it has liberalized terms, including those for the 4M bit/sec. boards that connect IBM Personal Computers and compatible machines to token-ring nets.

Soderblom

The new terms are the most recent of several downward adjustments that Soderblom has made in his royalty demands since first asserting his patent rights in 1981.

Despite the fact that Soderblom's patent was issued after lengthy proceedings and that included questions raised by many parties, including AT&T, Sperry Corp. and IBM, there still appears to be doubt as to its validity. A patent application by AT&T's Bell Laboratories was so similar to Soderblom's that proceedings were held by the U.S. Patent Office in the 1970s to determine which was the senior patent — the one that would entitle its owner to royalty payments.

Patents were eventually issued to both AT&T and Soderblom, but several references to Soderblom's application in the hearings records mention it as the junior and AT&T as the senior, according to those who have reviewed the records.

AT&T is currently sending letters to local-area network vendors asking for the same rights as Soderblom. Howard Charney, senior vice-president and legal counsel for 3Com Corp., said he has received letters from both Soderblom and AT&T asking for royalty payment on the same token-ring network boards. Having read both patents, Charney says of AT&T's document, "It's real close. It sounds like Soderblom's patent."

Attorneys for AT&T Bell Laboratories could not be reached for comment on the patent situation.

Pending an ultimate patent adjudication, network companies such as 3Com are faced with paying both AT&T and Soderblom in order to preclude the possibility of a patent infringement suit.

Soderblom came up with his token-ring idea at the age of 27 in 1967, when he was working in the data processing department of a Swedish bank. Although he has continued inventing and consulting since then, much of his time and effort has gone into asserting his patent claims on the token-ring scheme.

For the past year, he and his Washington, D.C.-based attorney, George Vande Sande, have been traveling the world in an effort to convince vendors to sign a licensing agreement or face a lawsuit on patent infringement.

Soderblom, who lives in the UK, was awarded a U.S. patent for the token-ring network scheme in 1981, after first applying for it in 1968. He was awarded patents in several countries in the late 1960s.

Soderblom revealed that Willemijn Holding received income from licensing revenue last year of $750,000, and revenue so far in 1986 has been $1 million. He says his legal fees thus far have been about $1 million.

Compliance kept secret

The only companies that have publicly revealed their agreement to pay Willemijn are IBM, Ungermann-Bass, Inc. and Bridge Communications, Inc. Other firms have insisted that their compliance with Soderblom's terms be kept secret.

IBM reportedly paid a lump sum of $5 million in 1980 for the right to use the system. In 1985, IBM announced it would make token passing a standard in its local-area networks.

3Com has yet to reach an agreement with Soderblom, although 3Com Chairman Robert Metcalfe has stated that discussions have been in progress [CW, June 2].

Wang Laboratories, Inc. admits that it is involved in discussions with Soderblom's attorney. Prime Computer, Inc., however, says that although Soderblom has contacted the company, no discussions or litigation with him are in progress.

The number of U.S. companies that may be liable for royalty payments could run as high as 1,000, according to Vande Sande.

Soderblom's U.S. patent was heavily contested after it was originally filed in November 1968. A patent was finally granted in 1981, which was reissued with broader meaning in March 1985. The U.S. patent is due to expire in November 1998.

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Microsoft buy-out of Topview clone maker a mixed message

By Peggy Watt

REDMOND, Wash. — The microcomputer software industry has mixed reactions to Microsoft Corp.'s recent acquisition of a Berkeley, Calif., firm that developed a clone of IBM's Topview.

Microsoft acquired Dynamical Systems Research, Inc., developer of Mondrian, a character-based Topview-compatible operating environment. Observers believe Microsoft's first major corporate move since it went public sends mixed signals about the direction of its long-term co-development agreement with IBM [CW, Aug. 26].

"You could say Microsoft is giving up on IBM and going directly to the few end users who've written to Topview, so that Windows can do everything Topview can," says Bob Lefkowits, vice-president of software research at Infocorp., a Cupertino, Calif., market research firm.

But Lefkowits alternatively speculates that Microsoft has grabbed some hot, Topview-savvy programmers to help it design a "Super Topview" on contract for IBM, which wants to market a product that combines the best of both programs and fights clone products such as Mondrian.

Mondrian reportedly requires less memory and runs faster than Topview. The product is fully compatible with Topview function calls as well as its applications.

Microsoft will say only that it wants to "address the needs of those few" who invested in Topview applications and provide a transition to the Microsoft Windows graphical interface. Nine members of Dynamical's technical development team will join Microsoft's systems software group.

Neither firm will disclose the acquisition terms. Microsoft made the move with newly available cash from its recent public stock offering, just weeks after the end of its quiet period following that offering.

"This is Microsoft's access to the Topview technology and a superior development team so they can further enhance Microsoft Windows," says Cameron Myhrvold, vice-president and a cofounder of Dynamical Systems.

Myhrvold says it is "ridiculous" to speculate Microsoft will abandon Windows. "Microsoft is interested in providing a transition path to support the somewhat orphaned Topview developers," he says.

But a clone-making competitor sees the acquisition as an expected bow to IBM's dominance.

"Microsoft's power came from the operating system it sold to IBM," says Therese Myers, president of Quarterdeck Office Systems, Inc., which produces the Topview-com-

See MICROSOFT page 95

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Lotus blossoms . . . selectively

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tion philosophy. "We feel no particular urgency to get into word processing or data base before it's too late," Kolowich says, alluding to an unnamed Torrance, Calif., firm that bought out Multimate International Corp. "You're going to see a lot more from us, but we'll use a building-block approach, rather than big gobbles."

In the rapidly consolidating micro software business, Lotus clearly holds a lot of the cards. It obviously can't sustain the growth rates from its days as a one-product phenom, but it isn't trying to duplicate that growth with major big-ticket buys.

The only danger of this approach lies in overestimating the strength of the company's core products, based on their huge success in the past. The percentage of Lotus revenue coming from products other than 1-2-3 and Symphony will continue to increase, but will that happen fast enough to fuel Lotus' trademark growth in a slowing marketplace?

The spreadsheet gurus of Cambridge, Mass., obviously think the answer is yes. If they are right, the strategy of sustained-yet-restrained acquisitions may prove to be a model for leaders in other consolidating market segments.

■

Data General Corp. and Wang Laboratories, Inc. must have forgotten the past, for they seem condemned to repeat it. When summer came to New England one year ago, 1,300 DG employees and 1,600 Wang workers found themselves with an early, unwanted vacation because of massive layoffs at both minicomputer firms.

Last week, Westboro, Mass.-based DG commemorated (approximately) the one-year anniversary of its downsizing by dismissing 500 more workers — after cutting 400 jobs a few weeks earlier. And Wang recently rekindled the Lowell, Mass., layoff rumors that have been swirling for months by announcing that further reductions in staff are necessary.

Along with the Boston Pops' Independence Day concert, Fenway Park and Cape Cod weekends, summer in New England has brought the computer industry a very unwelcome sense of deja vu.

IBM concentrates worldwide production of 9335 disk drives at single UK facility

By John Lamb
Computerworld News Service

LONDON — IBM will make its 9335 disk drives for the System/36 and System/38 minicomputers at one plant in Havant, England. The effort is said to mark the first time that IBM has concentrated the worldwide manufacturing of a mainline product at a single plant.

The drives, which are based on IBM's existing 3380 thin-film technology, can be combined to give up to 13.6G bytes of storage.

IBM plans to spend approximately $300 million on manufacturing 9335s during the lifetime of the product, according to IBM's UK chief, Tony Cleaver.

3370s made in West Germany

The existing disk units for the System/36 and 38, the 3370s, are also made in Europe in Mainz, West Germany.

IBM would not say how long the West German plant will continue producing 3370 disk units.

IBM recently won a Queen's Award for Export, the British way of recognizing company contributions to the balance of trade. However, International Computers Ltd., the British mainframe vendor, has criticized the award and has disputed IBM's contribution to the UK economy.

International Computers claims that much of IBM's exports are shipments to overseas subsidiaries, a charge which IBM has rebutted.

Microsoft buy-out mixed

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patible Desqview. "Now they're a clone maker like us."

She says she believes IBM has been quietly promoting Topview as a future necessity for PC-DOS compatibility. "We've believed for some time the standard will be set by IBM and that Topview is that standard," she says. "I think this validates our position."

Analyst Lefkowits says clone developers should be wary of a combination of Windows and Topview with or without IBM's blessing. In addition, Lefkowits notes that he is not optimistic about the fate of other operating environments, including Desqview.

"Other environments may have some niche market opportunities, but in terms of the wide acceptance of their technology, this could just be another nail in their coffin," he says.

Dynamical Systems was founded in 1984 and last year began shipping its sole product to OEM developers. This year it began retail sales, which will likely be discontinued under Microsoft's ownership, according to Dynamical.

Fanuc, GE to build automation plant

By Takehisa Kondoh
Computerworld News Service

CHARLOTTESVILLE, Va. — Fanuc Ltd., the top Japanese vendor of numerically controlled factory automation equipment, has entered a joint venture with General Electric Co. to establish a $200 million, equally owned factory automation manufacturing plant here.

The joint venture's product line will include factory control systems and software for designing and operating those systems, Fanuc said.

The jointly run company, to be called GE Fanuc Automation Corp., will have sales subsidiaries in the U.S., Japan and Luxembourg. Its work force, including the subsidiaries, will eventually reach 1,600, Fanuc said.

Tokyo-based Fanuc did not say, however, whether it will incorporate the new company, since the venture is subject to approval by the antimonopoly authorities in the U.S. and Japan. Some of the employees and facilities for GE Fanuc Automation will reportedly come from GE.

The deal will give Fanuc access to GE's networking and systems expertise, helping Fanuc move from depending heavily on selling numerically controlled equipment to marketing a full line of factory automation products. Fanuc has an estimated market share of numerically controlled equipment of 75% in Japan and 50% worldwide.

Fanuc has previously aligned itself with two other world leaders in factory automation. It codevelops computerized, numerically controlled machines with West Germany's Siemens AG, and it joined with General Motors Corp. in 1982 to establish a joint company, GMF Robotics, in the U.S.

Financial data market

From page 118

presence in the stock quote business that it had acquired from GTE in 1983. It now has an installed base of about 55,000 units, notes Ric Duques, president of ADP's Financial Services group.

"We went into the business with a desire to be No. 1," he says. "If we couldn't be No. 1, however, we wanted to be a strong No. 2. Bunker Ramo gave us that opportunity."

Microcomputers and satellite distribution are propelling Imnet into the market.

"When we started in 1984, we were the only one working with an intelligent workstation on the desk. Everyone thought that was insane, but now almost everybody agrees," Imnet's Higgins claims.

The IBM-Merrill Lynch joint venture is betting that satellite distribution of market data to individual clients' host systems, which can then be accessed by IBM Personal Computers, will enable it to win business from Quotron and ADP.

Imnet also recently began offering the capability for the PC to directly receive and display market data, competing with Lotus for business in this evolving market segment. In 1985, Lotus acquired Dataspeed, Inc., developer of an interface between Lotus 1-2-3 and stock quote information.

Wang also recently entered the market via acquisition. Earlier this year, Wang acquired Walsh, Greenwood Information Systems and its stock data and retrieval system, called Shark.

Imnet, despite some technology advances, has very little to show for its 2½-year existence. Some observers claim IBM has become disenchanted with Imnet's progress and is looking for a graceful way to withdraw from the joint venture.

"IBM is looking for a face-saving way to discontinue its involvement," says Lawton of "The Computer Services Report." "Some months ago, they reassigned some people from Imnet back to IBM."

An IBM spokeswoman said two IBM staff members working at Imnet had recently returned to the parent company because their assignments had been completed. She declined comment regarding IBM's future involvement in the joint venture.

Higgins attributes the firm's slow start to the complex undertaking of getting into the business. "We're off schedule, but not by much," he says. "Our parents have the staying power and synergy — IBM's technology and Merrill's market knowledge — to make it in the business."

Imnet's clout, however, may not be enough to overcome entrenched Quotron and ADP.

Many observers have speculated that Quotron would lose some major financial customers, such as Shearson Lehman Brothers, Inc., that consider themselves Citicorp competitors in financial services. But others contend that users will not sever long-established ties with the industry leader.

"The market is gone — locked up," Lawton says. "Unless you've got a new product that radically changes the way business is done, you don't stand a chance. It just takes too long and is too risky for people to change vendors."

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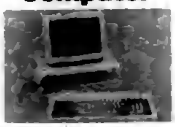

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✓Turbo Graphix Toolbox 1.0 — 33
✓Turbo Editor Toolbox 1.0 — 41
✓Turbo Gameworks 1.0 — 37
✓Turbo Newpak *(Gameworks and Editor)* — 52
✓Turbo Lightning — 57
✓Sidekick 1.5 — 49
✓Traveling Sidekick *(req. Sidekick)* — 45
✓Traveling Sidekick w/Sidekick — 73
✓Reflex 1.1 — 59
✓Superkey 1.1 — 41
✓Superkey/Sidekick Package — 67
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✓Turbo Holiday Pack *(Pascal 3.0, Tutor, and Database Toolbox)* — 37
✓Turbo Family Jumbo Pack *(Pascal 3.0, Database, Editor & Graphix Toolboxes, Tutor and Gameworks)* — 135
Breakthrough *(not copy-protected)*
✓Timeline 2.0 — 239
Broderbund *(copy-protected)*
✓Graphics Library 1 — 22.
✓Print Shop — 35.
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✓SuperCalc 3 Release 2.1 — call
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✓Irma — 769
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✓LQ-1000 printer *(136 column)* — call
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✓Smartmodem 2400 — 579
✓Smartmodem 2400B *(w/Smartcom II)* — 539
✓Smartcom II 2.1 *(software)* — 69
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✓Hercules Graphics Card *(parallel port)* — 299
Intel *(chips: 1 year; boards: 5 years)*
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✓Above Board AT 128k *(upgrades to 2 Meg)* — call
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✓80287 *(for 6 MHz IBM-PC AT)* — 225
✓80287-8 *(for 6 MHz IBM-PC AT)* — 269
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✓Masterpiece — 94
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✓PC Mouse with Ready and PC Paint+ — 149
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✓Multisync monitor *(EGA compatible)* — 549
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Conquest Multifunction Board 0k *upgrades to 2Mb, fully supports LOTUS/INTEL expanded memory specification (EMS)* — 264
Tiny Turbo 286 — 459
PC Turbo 286e w/1 Meg — 749
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WordStar 2000 Plus Release 2 ..... $286
WordStar has had some trouble shedding its image as the lumbering dinosaur of the microcomputer age. But hundreds of thousands of people use it. There are a lot of programs out there to back it up. And this new version gives it the same advanced features as any top-quality word processor. Even the control keys are starting to make some sense.

[illegible] 3.0 ..... $147
[illegible] performance with a reasonable price continues to be [illegible]'s claim to fame. It's fast, and boasts one of the original what-you-see-is-what-you-get screens. With the new [illegible]'s spell checker and more sophisticated print formatting, it is now able to compete functionally with the other high-end word processors. (Our new low price is pretty persuasive too).

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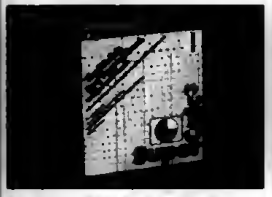
Supercalc ifragilistic!



SuperCalc 3 is the kind of product that you'd be proud to bring home to your mother. Like Lotus 1-2-3 it offers spreadsheet, information management and presentation graphics. But it only needs 128k of RAM, and is not copy-protected. It also is compatible with the Hercules Monochrome Card, as well as the Enhanced Memory (EMS) and Enhanced Graphics (EGA) standards. And you get a free copy of Sideways, the program that lets your printer think horizontal is vertical.

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COMPUTERWORLD's paid circulation climbed to over 129,522 this fall. Folio 400 (Folio Magazine's study of trade publication performance) placed us first in total revenue. As the industry grows, so will **COMPUTERWORLD.** It will continue to offer the high quality news coverage and editorial content that has attracted its readers. What does that mean to you, our advertisers? Good news...in the form of wide exposure.

The Classified section of the newspaper is laid out in an attractive format and is easy to read. It offers classifications to solve a variety of problems:

Position Announcements, Buy • Sell • Swap, Micro Direct Shopper, Software For Sale, Software Wanted, Time & Services, Bids & Proposals, Business Opportunities, Real Estate, Auctions, Positions Wanted, Seminars & Conferences, Publications and The Bulletin Board

Our BULLETIN BOARD section is ideal for the smaller companies who want a low-cost way to sell pieces of equipment (hardware or software). The BULLETIN BOARD is laid out as a quick reference for potential buyers who know what they are after.

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A number of Executive Reports and Product Spotlights are scheduled to run in **COMPUTERWORLD** during 1986. Each of these features will focus on one aspect of the computer industry and give our advertisers a chance to reach a more select audience. These are some of the topics the features will cover:

Executive Reports

- July 21 - **PBX Networks**
- July 28 - **Management Training for DP Executives**
- August 11 - **Information Centers**
- August 18 - **On End-User Computing**
- Sept. 1 - **The MAP Marketplace**
- Sept. 8 - **Computer Leasing**
- Sept. 22 - **Communications Standards**
- Sept. 29 - **On-line Computing**

Product Spotlights

- August 4 - **Applications Generators**
- August 25 - **Image Processing**
- Sept. 15 - **Spreadsheets**

COMPUTERWORLD publishes every Monday with an ad deadline of 10 days prior to each issue date. The issue of July 28th will be closing July 18th. You may send in copy to be pubset or camera-ready material (velox or negative) via the mail. We provide telecopier service and will also take ads over the phone.

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The qualified candidate should be a shirtsleeve manager with a broad, in-depth systems development background (7-10 years) with several companies. You should have large IBM mainframe experience and knowledge of CICS and PL 1. TPF will be a plus.

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POSITION ANNOUNCEMENTS

Systems and Programming

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This is a highly visible position offering the right individual an opportunity to demonstrate technical and managerial expertise. We offer an excellent salary, a benefits package which includes a 401K savings plan, and an environment in which to contribute and grow. Please send resume with salary requirement to: Catthya Barker, Dept. CW707, New York Power Authority, 10 Columbus Circle, New York, New York 10019. An Equal Opportunity Employer M/F. Committed to Affirmative Action.

New York Power Authority

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Use your VTAM knowledge to convert our system from TCAM to VTAM and network control programs. You will then provide VTAM maintenance, perform enhancements involving new design and programming in VTAM, and monitor CICS system performance.

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If you have Assembler language systems programming experience with expertise in VTAM, knowledge of CICS, and well-developed project planning skills, call or send your resume to:

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Wheat First Securities

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Job dissatisfaction, complacency and frustration are the biggest obstacles to overcome to achieve one's career goals. Everyday new career opportunities pass us by because we are unaware of their existence. Let us keep you abreast of what your true value is in the market place. Absolutely no obligations, please call or write Keith Reichle, CPC, Data Processing Specialist.

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Charlotte, North Carolina 28226
800-438-2012
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Excellent opportunities in ideal locations exist for individuals with the following backgrounds:

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- SYSTEMS to $48K (MVS, XA, VTAM, CICS)
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Interviewing and relocation costs paid.

Contact:
Tony Wale
RICHARD P. RITA, INC.
(813) 877-5756
1401 No. Westshore Blvd., Suite 505
Tampa, FL 33607

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Sacramento County is accepting applications for Computer Software Specialist to support CICS. Work involves planning, installation, maintenance and performance tuning several CICS systems. ADABAS and VM/CMS experience preferred but not required. Apply at Personnel Management, 700 H Street, Ground Level, (916) 440-5593. Salary: $32,926/yr - $40,019.

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Suite 230
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(213) 496-0052

PROGRAMMER – Program, maintain & enhance varied computer applications for ad. agency. Utilize knowl of COBOL, BASIC, CICS/VS on Wang hardware. 40 hrs/wk, $29,500/yr. Req: Master's - Comp Sci & 1 yr exp or 1 yr rel programming exp. Mail resume to: NYS Job Service, JO # 8020988, 485 5th Ave., NY, NY 10017 DOT 012167066.

POSITION ANNOUNCEMENTS

Printing systems executive. Marketing of Laser Printers for mainframe and mini computers. Xerox model numbers 9700, 8700, 4050, 4060, 3700, and 4045. Responsible primarily with large corporate "key" accounts. 2 yrs. exp. as marketing executive. Calif. Driver's License. $3,608.00/month. Place of employment and interviews, El Monte, Calif. Send this ad and your resume or letter stating qualifications to job # AW 4785, P.O. BOX 9560, Sacramento, CA. 95823-0560, no later than July 22, 1986.

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DataMasters Consulting Group is seeking experienced individual knowledgeable in CICS gens, tuning, troubleshooting and some applications programming for an on-line, real-time data acquisition project. Employment or contract status. Excellent earnings. Contact Paula White at (919) 373-1461 or send resume to:

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POSITION ANNOUNCEMENTS

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BUSINESS SYSTEMS ANALYST

Experienced in customer order entry, billing, and inventory management. Document and flow chart systems. Prepare user manuals. Structure logic flow for computer programmers. Degree and 5 years experience. Terse writing skills.

Prefer candidate with IBM System 38 database, CLP, and RPGIII skills to assist programmer with technical design. Multibranch company with telecommunications. 15% travel in the U.S.A. Send resume to:

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Copy: We'll typeset your ad at no extra charge. Please attach CLEAN typewritten copy. Figure about 25 words to a column inch, not including headlines. Any special artwork should be enclosed with your ad also. Logos must be submitted on white bond paper for best reproduction.

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COMPUTERWORLD CLASSIFIED ADVERTISING

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Framingham, MA 01701-9171

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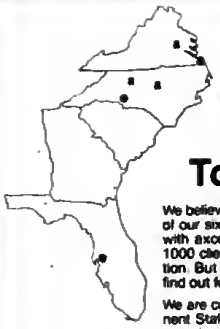
Programmers/Analysts



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Virginia Beach, VA 23450
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(804) 486-1900

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Candidates will possess well developed communications skills and be able to impart their knowledge as well as direct and consult to other D.P. professionals. Candidates should also have a background involving technical leadership, project design and management, and/or high level consulting, especially involving the use of: IDMS/R; IDMS/DC; IDD; ADS; UCF; OLQ; and CULPRIT.

The available positions represent an exceptional opportunity to work at a high level in a rapidly growing environment in AUSTRALIA. Successful candidates will have their relocation expenses paid and receive an excellent remuneration package based on a negotiated contract.

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SR. PROGRAMMER/ ANALYST

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YALE MATERIALS HANDLING CORPORATION is currently seeking a Senior Programmer/Analyst to provide technical and manufacturing systems support for large Burroughs mainframe using standard Burroughs software.

Qualified candidate must possess a minimum of 3 years experience, degree preferred. Work experience should include Burroughs software: GEMCOS, COBOL 74 Editor, DMSII, WFL, and CANDEE. Experience with TMS or variations of TMS a plus. Some travel involved.

Individual will be responsible for writing Batch and on-line programs for manufacturing systems with user interfacing. Work knowledge of MRP, CRP, shop floor control, inventory, and other manufacturing systems desired.

Our location offers a vast array of cultural activities with close proximity to both the mountains and beaches.

Please submit resume and salary requirements to

Employee Relations Department

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Greenville, N.C. 27834

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We changed banking once... We'll do it again.

As one of the first commercial banks in the country to implement a fully integrated database utilizing ADABAS, Long Island Trust has become a leader in the industry as to the way the auditing function operates. And while we are pleased with our accomplishments to date, we're planning even greater technological achievements which will put our organization further ahead of the competition. If you are an EDP Auditor interested in state-of-the-art diversified experience, and looking to join a leader, consider these positions.

Senior Systems Auditor

In addition to working with our systems professionals, you will play a critical role in user interface – up through senior management. Your responsibilities will include performing technical reviews of areas such as CICS, MVS, Telecommunication and Data Security, as well as participating in data center reviews. You will also participate in all stages of the system development life cycles and perform application reviews.

To qualify for this position which will involve managing 3 professionals, you should have a BA degree plus 3–5 years' EDP Auditing experience, preferably in banking. We are seeking individuals who have participated in, or supervised pre-implementation, application, and data center reviews. A solid understanding of IBM's MVS Operating System, exposure to major programming languages such as COBOL, Natural or Culprit and familiarity with telecommunications software are required.

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We are seeking an individual who will be responsible for the technical design, programming and implementation of audit software to support the diverse activities of the financial audit staff. Other key aspects of this position involve assessing the quality/accuracy of data and assisting in technical reviews of all aspects of the IBM Operating System.

To qualify for this position which will involve managing a staff of 2 professionals, a BA degree plus a minimum of 3–5 years audit programming experience and an understanding of EDP audit concepts are required. Knowledge of COBOL, Culprit, PanValet and TSO/ISPF is vital, as is a working knowledge of IBM's OS/MVS Operating System. Experience in a financial environment is also essential.

Join Long Island Trust and we'll do the same for your career as we've done for our data processing environment – change it for the better. We offer a salary between $36,000–$42,000, excellent benefits and minimal travel. For immediate consideration, please send resume and salary history to: Paul Munoz, Long Island Trust, 1415 Kellum Place, Garden City, NY 11530. An Equal Opportunity Employer m/f/h/v

Long Island Trust

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C&S Florida Service Corporation, located in Fort Myers, Florida, has an immediate opening for a Programmer/Analyst with 2+ years experience with the MSA Financial Information Control System in an IBM OS/MVS environment. Background in banking preferred.

We are expanding and new positions are being added to our programming staff, so if you have banking/data processing background, send us your resume today.

C&S offers an excellent salary and benefits package, challenging work and an outstanding potential for career growth. Please send your resume, complete with salary history, to:

C&S Florida Service Corp.
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Fort Myers, FL 33902
EEO/AA Employer

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Geisinger

MIS PROFESSIONALS

IBM ENVIRONMENT

As the management support unit to a 568-bed tertiary care medical center and other health care affiliates, GEISINGER System Services provides data processing professionals state-of-the-art challenges and advancement in a Central DP System for multi-entity users. The present environment is an on-line environment utilizing an IBM 3083 with MVS, CICS, TSO/ISPF, VTAM and FOCUS and multiple VAXS with VMS ethernet, and MUMPS. Due to growth within the department we have career opportunities for:

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Three to four years technical support and/or system software experience required. This experience includes the installation and maintenance of IBM (MVS/XA, VM, CICS, TSO, VTAM via SMP) as well as other software, maintenance of a complex data communications environment with access to multiple CPUs. BS in Computer Science required.

Senior Analyst / Programmer
Five years of programming/analysis experience utilizing DEC/VAX/MUMPS required. Experience with administrative/billing systems preferred. Experience with IBM mainframe and PCs desired. BS in Computer Science required. Advanced degree preferred.

Analyst / Programmer
Three years of programming/analysis experience utilizing CICS, COBOL, MVS, and VTAM required. Healthcare experience preferred. BS in Computer Science required.

Analyst / Programmer
Minimum of two years heavy experience with IBM PCs, including needs analysis, system configuration, installation, and customization. High level of user communication skills and experience preferably in a clinical or research setting required. Experience with conducting user training and education in a classroom environment required. Experience with micro-mainframe communications, Macintosh computers, Displaywrite 3, LOTUS, and FOCUS desired. Experience with using PC LANS to establish an Office Automation System preferred. A.S. required, BS desired, advanced degree preferred.

All applicants must demonstrate the ability to work independently and excellent communication skills. MIS is seeking experienced, aggressive individuals who are extremely user oriented.

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offers excellent compensation package and a full range of benefits. For consideration, send your resume including salary history and requirements to: Human Resources Dept., 30-12/V, GEISINGER SYSTEM SERVICES, Danville, PA 17822. An Equal Opportunity Employer, M/F.

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This individual will be responsible for defining systems development requirements and the preparation of system and program specifications including time, resource and cost estimates. Specifically, you will recommend the implementation of automated, as well as manual systems, have responsibility for all system documentation and overall accuracy of system functions.

This position demands a minimum of 6 years' programming/systems experience, degree in Business, Computer Science, Operations Research (or related field) and an in-depth knowledge of COBOL and database techniques. The ability to work in a team environment, as well as a strong creative ability, required.

Programmer Analyst
You will plan, schedule and perform various programming functions, including translating system specifications, testing/debugging and the preparation of required documentation. In addition, you will have some program design responsibilities.

We require a degreed (Business, Computer Science, Operations Research, or related field) individual with a minimum of 2 years' programming experience. Excellent communications abilities, a strong attention to detail and an in-depth knowledge of COBOL essential.

We offer a highly competitive salary, an excellent benefits program and a state-of-the-art environment. To apply, please forward your resume, including salary requirements, to: Ms. Kathleen Brittain, Employment Specialist, Kentucky Fried Chicken, PO. Box 32070, Department-DP, Louisville, KY 40232. We are an equal opportunity employer M/F.

Kentucky Fried Chicken.

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The Data Group
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Ad closing is every Friday, 6 working days prior to issue date.

Rates: Open rate is $161.70 per column inch. Columns are 2" wide. Minimum ad size is 2 column inches (1 column wide by 2 inches deep), and costs $323.40 per insertion. Additional space is available in half inch increments. Some sample sizes and costs are shown.

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Cynthia J. Delany, Classified Operations Manager

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Western Regional Director/William J. Healey
COMPUTERWORLD, 300 Broadway Suite 20
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INDUSTRY NOTES

DEC names senior vice-presidents

Digital Equipment Corp. last week named three vice-presidents to the newly created level of senior vice-president, effectively identifying three potential successors to President and founder Kenneth H. Olsen.

Promoted were Winston R. Hindle Jr., 55, vice-president of corporate operations; John J. Shields, 47, vice-president of sales, service, international and industry marketing; and John F. Smith, 51, vice-president of engineering, manufacturing and product marketing.

■

IBM named Paul J. Kofmehl as group executive of its **World Trade Americas Group**, responsible for operations in Canada and Latin America. Kofmehl had been president of IBM World Trade Eurupe/Middle East/Africa Corp.

■

IBM filed a shelf registration with the Securities and Exchange Commission for up to $700 million in debt securities offerings. The move is not itself a debt offering, but it clears the way for IBM to issue new debt quickly at any time within the next two years.

■

Further strengthening its move toward the mainframe software market, **Ashton-Tate** announced a cooperative marketing agreement with **Cincom Systems, Inc.** The agreement calls for joint marketing and mutual referrals and covers Cincom's PC Contact and Ashton-Tate's Framework II, for which the two vendors jointly developed integration tools.

DCA agrees to acquire Cohesive

From page 118

to develop internally quickly enough," said Andy Schopick, vice-president and senior analyst with Gartner Securities Corp. in Stamford, Conn.

"In DCA's efforts to build a company and enhance their ability to compete, this acquisition is strategically sound," Schopick added.

Cohesive was founded in September 1982 and in 1985 released its first product, CN-1, an intelligent network controller that integrates voice, data and video over 16 digital T1 lines. CN-2, also released last year, offers increased capacity with connection to 36 T1 lines.

Acquisitions

After it establishes a presence in the T1 market, DCA will look to acquire a strong company in the LAN market, analysts say. 3Com Corp. of Mountain View, Calif., has been mentioned as one possibility, although 3Com Chairman Robert Metcalfe has said the firm is not interested in being acquired [CW, June 30].

In February, DCA announced a joint development agreement with 3Com to produce a LAN gateway based on Irma technology.

Under the terms of the agreement announced last week, Cohesive is to become a division of DCA, with engineering and manufacturing operations continuing in Los Gatos. However, sales and marketing functions will be integrated with DCA, according to Nordin.

The agreement calls for DCA to issue up to 1.65 million new common shares to Cohesive shareholders. The transaction will be accounted for as a pooling of interests and is subject to Cohesive shareholder approval.

Ingredients for success

"We have great technology and great people, and DCA has its strengths in sales, marketing and service," said John A. McGuire, Cohesive president and chief executive officer. "Altogether, it adds up to the ingredients you need for success."

It has not been decided whether DCA's Netlink T1 multiplexer product will be integrated into the new Cohesive division, Nordin said.

"Netlink is a much lower-end, point-to-point product, while CN-1 and CN-2 are networking products," he added.

DCA's merger with Cohesive is expected to be completed in August.

Flat quarter seen for high tech; IBM, Honeywell dip predicted

ACTIVE ISSUES
Kathy Porteus

The computer industry's financial results for the quarter ended June 30 will not set off any fireworks. Nevertheless, when technology firms begin reporting their latest quarter, the numbers will likely confirm that the bad news is at least not getting worse.

Steven Milunovich, technology analyst with First Boston Co., says mainframe orders and shipments are still down year to year, but within a narrower range. He estimates IBM (IBM — 148⅝), Honeywell, Inc. (HON — 75⅝) and Amdahl Corp. (AMH — 17½) will report down quarters uf $2.20, 75 cents and 5 cents per share earnings, respectively.

NCR Corp. (NCR — 52⅜) will be the exception, Milunovich says, earning an estimated 77 cents per share vs. 67 cents a year ago. NCR's sales are more exposed to the financial industry than to the manufacturing industry in which tougher business conditions exist.

According to Thomas E. McCrann, vice-president with Merrill Lynch, Pierce, Fenner & Smith, Inc., there is a risk of disappointing June quarter results for minicomputer companies other than Digital Equipment Corp. (DEC — 88⅛). McCrann estimates DEC will earn $1.50 per share and has a "reasonable chance of doing better."

But there was no industrywide increase in demand during the past quarter. McCrann estimates Data General Corp. (DGN — 35¼) will show operating earnings of less than 10 cents per share.

McCrann recently lowered his June quarter estimates for Prime Computer, Inc. (PRM — 18¼) to 15 to 20 cents per share from 20 to 25 cents. "The company is behind plan in terms of firm bookings, despite a high level of interest and activity," McCrann says.

Although most players in the computer-aided design and manufacturing market will experience flat earnings compared with the March quarter, there are a few exceptions, says John Rohal, vice-president with Alex Brown & Sons.

Sun Microsystems, Inc.'s (SUNW — 16) June quarter is slightly ahead of what Rohal had expected. Rohal now estimates Sun will earn 18 to 20 cents per share on sales of $72 million, up from 10 cents per share and $69 million a year ago. "In this environment, that is a nice increase," Rohal says.

According to Rohal, Cray Research, Inc. (CYR — 98½) and Autodesk, Inc. (ACAD — 38) continue their strong performances. He estimates Cray will report $1.20 in earnings per share, and Autodesk will earn 36 cents per share during its July quarter.

According to Paul Johnson, analyst with L. F. Rothschild, Unterberg Towbin, all large-capitalization semiconductor companies except Advanced Micro Devices, Inc. (AMD — 20) will show sequential sales and earnings improvment. Johnson expects Advanced Micro Devices will report a June quarter loss of 30 cents per share.

On the other hand, Intel Corp. (INTC — 22¾) may show a surprise on the up side, Johnson says. He estimates Intel will lose 15 cents a share, but if "June's business is as strong as May's, the company could do better." Johnson also estimates Motorola, Inc. (MOT — 38¾) and Texas Instruments, Inc. (TXN — 119¼) will earn 40 to 45 cents and 30 cents per share, respectively.

For investors willing to look beyond the next few months and into 1987, Johnson recommends purchase of Intel, Motorola and TI. "If you get any kind of an economic uptick toward the end of this year," Johnson says, "you'll have a very exciting group of stocks."

Porteus is president of Strand Reseorch Associates, o Centerville, Mass.-based company that provides customized reseorch services for financial and high-tech firms.

ITT sells unit to European group

From page 118

business, as evidenced by lukewarm response to the System 12.

"ITT realized that the only way to win was to pump greater amounts of cash into the operation and cut short the life of System 12," said Kenneth Bosomworth, president of International Resource Development, Inc. in Norwalk, Conn. "They felt it wasn't worth it."

As expected, ITT will retain 30% of the new joint venture holding company, which includes CGE's Alcatel telecommunications unit. Completion of the deal is expected by the end of the month and requires approval of the French government, according to ITT.

CGE's European partners include Societe Generale de Belgique, the Belgian bank reported to have played a role in arranging the deal, and Telefonica, Spain's national telephone company.

Other European firms, including Britain's Plessey PLC, are reported to be interested in investing in the holding company.

Under terms of the deal, CGE would pay $1.8 billion in cash for ITT telecommunications, a figure that includes repayment of about $350 million in the unit's debt, an ITT spokesman said. ITT would also transfer $1 billion of its $2.6 billion in debt to the joint venture company, the spokesman added.

Disk drive maker to end production

By Maura McEnaney

CHATSWORTH, Calif. — After suffering an $18 million yearly loss, a severed contract with IBM and a $6 million patent infringement settlement with competitor Quantum Corp., Computer Memories, Inc. announced last week that it will discontinue its microcomputer disk drive manufacturing business.

Left with approximately $30 million in working capital, Computer Memories is attempting to save what is left of the business by proposing to buy another, perhaps unrelated, company or to be acquired. The company said it attempted to sell its remaining disk drive inventories in the quarter ended June 30.

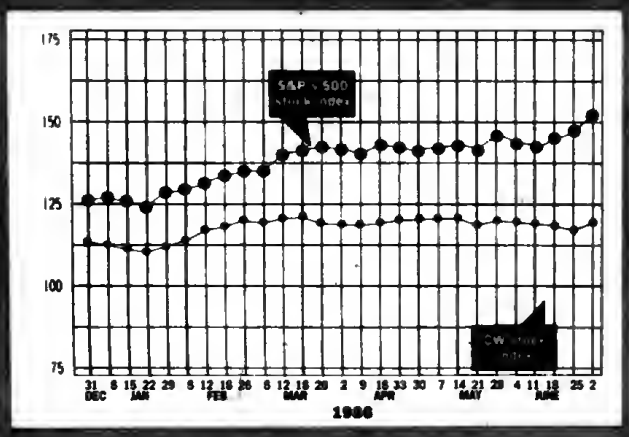
Computer Memories Chairman Irwin Rubin said the company would continue repair and warranty work on its installed base of 5¼-in. disk drives. The company discontinued production of its CM6000 20M-byte and 40M-byte disk drives in April, after it reached an out-of-court settlement with Quantum. Plans to manufacture a line of high-end CM7000 disk drives later this year were abandoned.

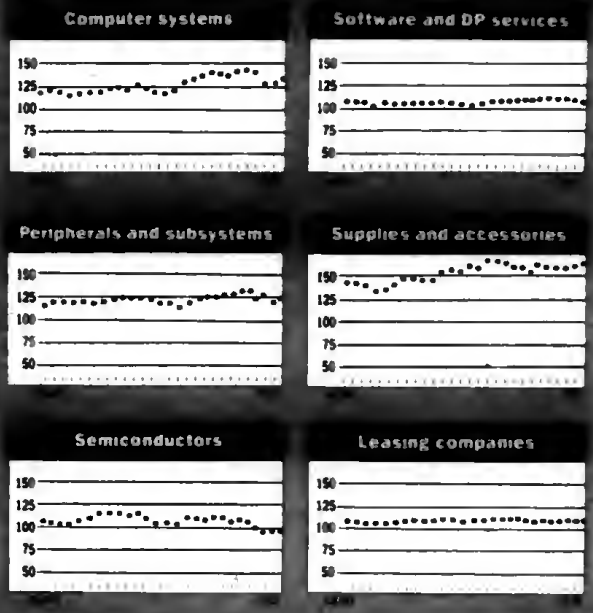
Computer Memories has been unprofitable since IBM stopped using its drives in the Personal Computer last year. IBM drives had accounted for about 80% of Computer Memories' business. Shortly after, the firm laid off more than 30% of its staff.

COMPUTER INDUSTRY

MITCHELL J. HAYES

Computerworld stock trading index





	6/25/86	7/2/86
Computer systems	125.5	**126.7**
Software and DP services	106.0	**106.9**
Peripherals and subsystems	122.2	**124.1**
Supplies and accessories	154.7	**156.6**
Semiconductors	93.0	**93.0**
Leasing companies	104.1	**104.2**
CW stock index	116.9	**117.8**
Standard and Poor's 500 stock index	148.8	**151.1**

Computerworld stock trading summary

CLOSING PRICES WEDNESDAY, JULY 2, 1986

EXCH		52 WEEK RANGE (1)	CLOSE JULY 2 1986	WEEK NET CHNGE	WEEK PCT CHNGE
	COMPUTER SYSTEMS				
O	ALPHA MICROSYSTEMS	5- 6	6	0	0.0
O	ALTOS COMPUTER SYST	9- 18	14 3/8	-1 5/8	-10.1
A	AMDAHL CORP	10- 18	18 1/8	+3/4	+4.3
O	APOLLO COMPUTER	9- 31	14	+2 1/4	+19.1
O	APPLE COMPUTER INC	14- 39	36 1/8	+1/4	+0.8
N	AT&T	19- 38	25 1/8	0	0.0
N	BURROUGHS CORP	52- 71	67 1/2	+6	+9.7
O	COMPAQ COMPUTER CP	5- 18	14 1/2	+3/8	+2.8
O	COMPUTER AUTOMATION	1- 8	2 7/8	-5/8	-18.5
4	COMPUTER CONSOLES	5- 14	6 3/4	1/4	-2.5
N	CONTROL DATA CORP	15- 39	22 1/2	-5/8	-2.7
O	CONVERGENT TECHNOL	5- 13	7 3/4	+5/8	+8.7
O	CPT CORP	4- 8	4 1/4	0	0.0
N	CRAY RESEARCH INC	25- 97	97 5/8	+5 1/2	+5.6
O	DAISY SYSTEMS CORP	11- 38	11	-1/2	-4.3
N	DATA GENERAL CORP	31- 76	35	+2 1/2	+7.6
O	DATAPOINT CORP	5- 22	8	+1/8	+1.5
N	DIGITAL EQUIPMENT	42- 91	89 1/2	+3 7/8	+4.5
A	EECO INC	13- 20	18	5/8	-3.1
N	ELECTRONIC ASSOC	3- 7	5 1/4	-1/4	-4.5
N	FLOATING POINT SYST	18- 42	37 7/8	+5/8	+1.6
N	FOXBORO	22- 31	30 3/8	-5/8	-2.0
N	GOULD INC	20- 38	22	+5/8	+2.9
N	HARRIS CORP	22- 35	32 5/8	+1 1/2	+4.6
N	HEWLETT-PACKARD CO	29- 46	42 1/4	0	0.0
N	HONEYWELL INC	54- 67	76 3/4	+1 1/2	+1.9
N	IBM	117- 158	149 1/2	+2	+1.3
O	IPL SYSTEMS INC	1- 4	3 5/8	+1/2	+17.3
N	ITT CORP	28- 57	56 3/4	+7 3/8	+14.9
N	M/A-COM INC	13- 24	17 1/4	+1/8	+0.7
N	MANAGEMENT ASSIST	2- 36	2 1/2	-1/16	-2.4
N	MATSUSHITA ELEC(ADR)	49- 98	67 1/4	-2 3/4	-3.0
O	MENTOR GRAPHICS	13- 30	15 1/2	-1 1/4	-7.4
N	MOHAWK DATA SCI	1- 13	2 5/8	+1/8	+5.0
N	NBI INC	11- 20	12 1/2	-1	7.4
N	NCR	35- 56	52 1/2	-1/4	-0.4
N	PERKIN-ELMER	22- 36	38 1/4	+7/8	+3.1
N	PRIME COMPUTER INC	15- 27	18 7/8	+1 3/4	+10.2
N	SPERRY CORP	39- 76	75 7/8	+3/8	+0.4
O	STRATUS COMPUTER INC	9- 25	21 1/2	-3/4	-3.3
O	TANDEM COMPUTERS INC	13- 34	32 3/8	+3/4	+2.3
N	TANDY CORP	24- 44	38 3/4	+5/8	+0.9
O	TELEVIDEO SYSTEMS	2- 4	3	0	0.0
O	TELXON CORP	9- 24	23 1/2	+1/2	+2.1
N	TEXAS INSTRUMENTS	86- 141	118 5/8	-1 5/8	-1.3
N	ULTIMATE CORP	9- 34	28 1/4	-1	-3.4
O	VECTOR GRAPHICS INC	1- 1	1/8	0	0.0
A	WANG LABS "B"	15- 39	14 7/8	-3/4	-4.7
A	WANG LABS "C"	15- 39	15	-1	-6.2
N	XEROX CORP	37- 72	67 5/8	+2 5/8	+4.3
	SUPPLIES & ACCESSORIES				
N	AMERICAN BUS FRODS	21- 38	33 1/8	+1/4	+0.7
N	BARRY WRIGHT	17- 29	20 5/8	-3/4	-3.5
A	DUPLEX PRODUCTS INC	13- 22	21	-3/8	-1.7
N	ENNIS BUS. FORMS	14- 38	38 1/4	-1 5/8	-5.8
N	3M COMPANY	74- 114	114	+2 7/8	+2.5
N	MOORE CORP LTD	15- 27	38	+3/4	+2.6
O	STANDARD REGISTER	22- 45	40	+1/2	+1.2
N	WALLACE COMP SERVICE	30- 49	48 5/8	+3 5/8	+8.0

EXCH		52 WEEK RANGE (1)	CLOSE JULY 2 1986	WEEK NET CHNGE	WEEK PCT CHNGE
	SOFTWARE & DP SERVICES				
O	ADVANCED COMP TECH	2- 6	5 5/8	0	0.0
N	ADVANCED SYSTEMS INC	9- 20	16 1/2	+3/4	+4.2
N	AGS COMPUTERS INC	10- 25	20 7/8	+1 5/8	+8.4
O	AMERICAN SOFTWARE	9- 15	13	-5/8	-4.5
N	ANACOMP INC	5- 11	5 1/2	-1/4	-4.3
O	ANALYSTS INTL CORP	2- 6	8	+3/8	+8.6
O	ASHTON TATE	5- 34	38 7/8	+1/2	+1.7
O	ASK COMPUTER SYSTEMS	7- 25	11 1/8	-1/2	-4.3
8	ASTRADYNE COMP IND	1- 3	1 5/8	-1/16	-4.1
N	AUTOMATIC DATA PROC	19- 38	35 3/4	+1/4	+0.7
O	COMPUTER NETWORK	5- 8	7 7/8	+1/8	+1.6
O	COMPUTER ASSOC INT'L	9- 25	25	+1 1/4	+5.2
O	COMPUTER HORIZONS	9- 11	12 5/8	-1	-7.3
N	COMPUTER SCIENCES	13- 39	36 3/8	+1/4	+0.6
O	COMPUTER TASK GROUP	7- 16	13 1/4	-3	-18.4
O	COMPUTER USAGE	1- 3	2 1/8	-3/8	15.0
O	COMPUTONE SYSTEMS	3- 11	3 1/2	1/8	-3.4
O	COMSERV CORP	1- 6	3 1/4	-5/8	-16.1
O	COMSHARE	7- 13	13	0	0.0
N	CULLINET SOFTWARE	12- 23	13	+1/4	+1.9
O	CYCARE SYSTEMS INC	13- 27	14 1/8	0	0.0
O	HOGAN SYSTEM INC	4- 12	11 1/8	+3/8	+3.4
N	GENERAL ELECTRIC CO	56- 82	81 1/4	-1/2	-0.6
N	GENL MOTORS E (EDS)	20- 48	48	+1/2	+1.0
N	GTE CORP	38- 55	55 5/8	+2 5/8	+4.6
O	INFORMATION SCIENCE	1- 5	3 1/4	-1/2	-13.3
O	INFOTRON SYSTEMS CP	13- 24	15 1/4	-1/2	-3.1
O	KEANE ASSOCIATES	10- 20	15 1/8	+5/8	+2.5
N	LOGICON	25- 43	33 1/4	+1/8	+0.3
O	LOTUS DEVELOPMENT CP	15- 38	37 1/4	+1 1/8	+3.1
O	MCI COMMUNICATIONS	7- 13	10 3/8	+1/4	+2.4
O	MNGT SCI AMER INC	7- 16	13 7/8	-3/4	-5.1
O	MATHEMATICAL APP GRP	1- 6	1/2	0	0.0
N	MICOM SYSTEMS INC	12- 35	12 3/4	0	0.0
O	MICROPRO INT'L CP	2- 4	2 1/8		+2.6
O	NATIONAL DATA CORP	8- 25	20 3/4	+1	+5.0
O	ON-LINE SOFTWARE INT	4- 16	13 3/4	+1/2	+3.7
N	PANSOPHIC SYSTEMS	14- 35	30 5/8	+3/8	+1.2
N	PLANNING RESEARCH	11- 23	18 1/8	-1/8	-0.6
O	POLICY MGMT SYS78 CP	18- 35	16 3/4	-1/2	-2.5
O	PROGRAMMING & SYS	4- 10	6 7/8	-1/8	-1.2
O	REYNOLDS & REYNOLD	20- 65	32 3/4	-1/2	-1.5
O	SEI CORP	13- 27	18	+1/4	+1.4
O	SHARED MEDICAL SYST	26- 38	35 1/2	+1 3/8	+4.0
O	SCIENTIFIC COMPUTERS	4- 6	4 1/2	0	0.0
O	SOFTWARE AG	12- 22	16 5/8	-1 1/8	-5.7
N	URS CORP	10- 18	18 1/4	+1/8	+0.7
N	UCCEL	11- 23	21 5/8	+1/8	+0.5
O	VM SOFTWARE	17- 31	38 1/4	+1 1/4	+4.6
	SEMICONDUCTORS				
N	ADVANCED MICRO DEV	20- 38	20	-1 1/2	-8.9
N	ADV'D SEMICONDUCTOR	7- 23	6	-1/8	-1.3
N	ANALOG DEVICES INC	14- 24	16 3/8	-5/8	-2.0
O	ANALOGIC CORP	11- 16	12 1/2	-1/4	-1.6
N	APPLIED MAGNETICS CP	9- 16	16 7/8	+1 1/2	+6.7
O	AVANTEK	17- 38	16 1/2	+5/8	+3.4
O	HADCO CORP	3- 7	5 3/8	+3/8	+7.5
O	INTEL CORP	21- 33	22 1/2	-1 1/2	-6.2
O	MICRO MASK INC	5- 12	4 3/4	-1/8	-2.5
N	MOTOROLA INC	28- 48	37 7/8	-1 1/8	-2.8
N	NAT'L SEMICONDUCTOR	10- 15	11 5/8	+1/8	+1.0
N	TERADYNE	17- 33	22 3/4	+5/8	+1.9

EXCH		52 WEEK RANGE (1)	CLOSE JULY 2 1986	WEEK NET CHNGE	WEEK PCT CHNGE
	PERIPHERALS & SUBSYSTEMS				
P	AM INTERNATIONAL	3- 8	6 3/4	-1 1/8	-14.2
4	ANDERSON JACOBSON	2- 5	2 1/4	+1/8	+5.8
O	AST RESEARCH INC	7- 33	14 3/8	+1 1/2	+11.8
O	AUTO-TROL TECHNOLOGY	3- 12	4 1/8	0	0.0
O	AVANT-GARDE COMPUTING	3- 21	4	+1/4	+6.6
O	BANCTEC INC	8- 13	8	-3/4	-7.8
O	BEEHIVE INT'L	1- 2	1/8	0	0.0
N	BOLT,BERANEK & NEW	20- 48	43 1/4	+1 5/8	+3.9
O	CAMBEX CORP	1- 3	1	0	0.0
N	CENTRONICS DAT4 COMP	3- 11	6 1/2	0	0.0
4	CETEC CORP	5- 9	7 1/4	+1/8	+1.7
4	COGNITRONICS	4- 7	3 7/8	+1/8	+3.3
N	COMPUGRAPHIC CORP	20- 38	19 1/2	-1/2	-2.5
O	COMPUT R TRANSCEIVER	0- 1	3/4	0	0.0
N	COMPUTERVISION CORP	9- 44	14 1/2	1/4	-1.6
N	CONRAC CORP	12- 16	18 3/8	+1 3/8	+6.1
4	DATAPRODUCTS CORP	11- 20	14 5/8	5/8	-4.0
4	DATARAM CORP	4- 17	6 1/2	-3/4	-8.1
O	DATA SWITCH CORP	4- 6	6 3/4	+3/4	+12.5
O	DATUM INC	5- 6	6 1/8	+1/8	+2.0
O	DECISION IND CORP	10- 20	13 1/8	1 5/8	-11.0
O	ENDATA, INC	2- 8	8 3/4	0	0.0
O	EVANS & SUTHERLAND	13- 27	22	0	0.0
O	GANDALF TECHNOLOGIES	5- 13	8 1/2	-1/4	-3.7
N	GEN'L DATA COMM IND	9- 21	12 1/8	-5/8	-4.9
N	HAZELTINE CORP	17- 30	20 1/8	+5/8	+1.8
O	ICOT CORP	3- 12	11	0	0.0
O	INFORMATION INTL INC	10- 17	16 1/4	+3/4	+4.8
O	INTECOM INC	3- 11	5	-1/4	-5.8
O	MEGADATA CORP	3- 6	3 5/8	+1/2	+16.0
4	MSI DATA CORP	7- 14	13	-3/4	-5.4
N	NASHUA CORP	24- 53	50	+5/8	+0.7
O	NETWORK SYSTEMS CORP	11- 27	13 1/4	+1/2	+3.9
N	NO AMERICAN PHILIPS	32- 47	44 7/8	-1/2	-1.1
N	NORTHERN TELECOM LTD	28- 41	29 1/4	-1/2	1.8
O	OMEX	1- 3	1/2	0	0.0
N	PARADYNE CORP	8- 16	6 3/8	0	0.0
4	PENRIL CORP	8- 14	6 1/4	-5/8	-9.0
N	PLESSEY CO (ADR)	19- 38	34	-1 1/4	-3.5
O	PRINTRONIX INC	9- 16	13 1/4	-1/4	-1.8
O	QMS INC	9- 16	14 7/8	-3/8	2.4
O	RAMTEK CORP	3- 7	5 7/8	+5/8	+6.8
N	RECOGNITION EQUIP	8- 17	12 3/8	-3/8	-2.8
N	SANDERS ASSOCIATES	28- 54	54	+21 5/8	+98.5
O	SCAN-TRON CORP	9- 24	23 1/4	-1/4	1.0
N	SCIENTIFIC ATLANT4	10- 16	10 1/8	-1/4	-2.4
O	SEAGATE TECHNOLOGY	5- 13	11 5/8	-1/4	-2.1
N	STORAGE TECHNOLOGY	1- 5	3 7/8	+1/2	+14.8
O	SYKES DAT4TRONICS	0- 2	5/8	+1/16	+16.8
A	T BAR INC	5- 9	5 7/8	+5/8	+11.8
A	T4B PRODUCTS CO	9- 15	14	-1/4	-1.7
O	TANDON CORP	3- 6	6 1/8	-1/8	-2.0
A	TEC INC	4- 13	4 1/4	-1/2	-10.5
N	TENTRONIX INC	47- 68	60	+5/8	+1.0
N	TELEX	34- 68	58	1/2	0.5
O	TESDAT4 SYSTEMS CP	0- 3	5/8	0	0.0
N	TIMEPLEX INC	15- 23	16 5/8	0	0.0
N	TITAN CORP	4- 11	6 7/8	+3/8	+3.8
O	VISUAL TECHNOLOGY	1- 3	1/2	0	0.0
	LEASING COMPANIES				
N	COMDISCO INC	7- 24	22	+1	+4.7
O	CONTINENTAL INFO SYS	5- 12	11 7/8	+1/8	+1.0
O	FINALCO GROUP INC	3- 5	3 1/4	+1/8	+4.0
O	PHOENIX AMERICAN INC	2- 6	3 3/4	0	0.0
O	SELECTERM INC	5- 12	7 1/2	0	0.0
N	U.S. LEASING	33- 46	41 1/4	-3/4	-1.7

EXCH: N=NEW YORK; 4=AMERICAN; P=PACIFIC; 8=BOSTON; 1=NATIONAL; M=MIWEST; O=OVER-THE-COUNTER; 5=SPLIT
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COMPUTER INDUSTRY

INSIDE

The head of Nixdorf's U.S. operations discusses the challenges and frustrations of the domestic market/**89**

Token-ring patent claimant Olof Soderblom continues to press vendors for royalties/**90**

Microsoft's recent acquisition of a software firm sends mixed signals to the Topview/Windows market/**94**

INSTANT ANALYSIS

"What IBM needs to do is push a lot of software and peripherals to drain MIPS, so that their installed base needs more capacity and starts buying hardware again."

— Charles Greco, vice-president, International Data Corp.

DCA to acquire Cohesive

Second buy-out this year gains T1 network foothold

By James A. Martin

ALPHARETTA, Ga. — In a move to further expand beyond its flagship Irma product line, Digital Communications Associates, Inc. (DCA) last week agreed to acquire Cohesive Network Corp., a privately held T1 multiplexer vendor in Los Gatos, Calif., for approximately $30 million in DCA stock.

The proposed merger, the second for DCA this year, was seen as another step in the quest to become, through acquisition, a diversified data communications company. DCA earlier this year acquired micro-to-mainframe equipment vendor Forte Communciations, Inc. of San Jose, Calif. [CW, Feb. 3]. In a recent interview, President and Chief Executive Officer Bertil D. Nordin said that DCA was interested in entering the T1, local-area network (LAN) and gateway markets by acquiring one or more companies this summer [CW, June 2].

"We looked at all the companies with T1 products and saw Cohesive as having the most advanced," Nordin said last week. "In addition, it had products that are available now and not simply expected in the future."

Although DCA's fortunes were built on the Irma micro-to-mainframe terminal emulation board, industry analysts have noted that Irma will soon produce diminishing returns. DCA is threatened in the short term by competitive pressures from IBM and in the long term by changing microcomputer technology that could make Irma — considered the industry standard — obsolete.

"The Cohesive acquisition will alleviate some concerns about DCA's growth potential," said Mark Dunkel, vice-president of research for Robinson-Humphrey Co. in Atlanta. "This acquisition gives them a new product line in a rapidly growing segment of the communications market."

Cohesive "adds something to DCA's product set that was otherwise missing, something they would not have been able

See **DCA** page 116

ITT to sell unit to European group

By Alan Alper

NEW YORK — ITT last week agreed to sell controlling interest in its telecommunications business unit to a consortium of European firms, led by France's state-owned Compagnie Generale d' Electricite (CGE), for $1.8 billion.

The venture is expected to be a major factor in the telecommunications industry outside of the U.S., particularly in Europe and South America, analysts said last week.

"It signals ITT's total withdrawal from the U.S. market and a stronger emphasis on the European market," noted Jeff Kaplan, a telecommunications analyst with International Data Corp. in Framingham, Mass.

The joint venture company's product line would include CGE's Alcatel System E-10 central office switch and ITT's much-maligned System 12 central office switch. In addition, the new company would market products formerly handled by ITT's money-losing Business Information Systems group, including microcomputers and peripherals.

The venture would control 10% of the worldwide telephone switching business, with operations in 75 countries, and is expected to have annual revenue of about $9.6 billion, making it the world's second largest telecommunications company behind AT&T.

Although ITT Chairman Rand Araskog would head a supervisory group overseeing the venture, daily operations would be managed by CGE, ITT said.

Analysts last week said ITT was motivated by its mounting debt, which had begun to effect research and development expenditures, and its inability to increase market share in the central office switch

See **ITT** page 116

INDUSTRY INSIGHT
Clinton Wilder

Lotus blossoms . . . selectively

Michael Kolowich, the marketing vice-president of Lotus Development Corp., says that appearances can be deceiving. Even as he displays a chart depicting the five companies of which Lotus has either acquired 100% equity or specific product lines in the past 18 months, Kolowich insists that it's all relative.

Relative to what? Relative to the number of business plans that pass over Chairman Mitch Kapor's desk from microcomputer software companies that want to be acquired by Lotus.

"We take an extreme amount of care to not act like the kid in the candy store and eat more than we can digest," Kolowich says. "We think we've been very careful. Without exception, the number of potential deals flowing to Lotus is stronger than in any other company I've been involved with." And before life with Lotus, Kolowich formulated merger and acquisition strategies for Fortune 500 companies as a consultant with Boston-based Bain & Co.

Although Kolowich won't come out and say it, Lotus is trying to differentiate its acquisition strategy from that of the other micro software superstars, notably Ashton-Tate and Software Publishing Corp. Lotus emphasizes, with credibility, that virtually all of its acquired products can work with, enhance or provide gateways to 1-2-3 and Symphony (the company doesn't talk much about Jazz).

In other words, this is the "complement" rather than "diversify" acquisi-

See **LOTUS** page 94

Wilder is Computerworld's senior editor, computer industry.

On-line financial data market attracts diverse players

By Alan Alper

NEW YORK — The investment community's seemingly insatiable need for timely and relevant economic data is drawing a wide variety of deep-pocketed participants into the on-line financial information market.

Within the past six months, the market's two largest vendors — Quotron Systems, Inc. and Bunker Ramo Information Systems —have been acquired by Citicorp and Automated Data Processing, Inc. (ADP), respectively. Information service firms such as Bridge Trading Co., CMQ Communications, Inc., Knight-Ridder Newspapers, Inc. and Reuters Ltd. are battling for market share with computer heavyweights Wang Laboratories, Inc., Lotus Development Corp. and International Marketnet (Imnet), a joint venture of IBM and Merrill Lyoch & Co.

"It follows that with increased demand for stocks and bonds, trading volume has gone up. So has interest in this business," notes Jerry Higgins, marketing vice-president at Imnet.

The allure, vendors say, is the expanding and somewhat fragmented international market for financial information. One thing is clear: Brokerage firms are no longer the only customers for stock and bond quote information and financial news.

Banks offering a full range of investment vehicles as well as insurance companies and private investors are now seeking access to such information, creating sundry market opportunities for the new entrants.

Those entering the market can differentiate themselves by offering new technologies, such as satellite distribution and intelligent workstations, to provide cheaper and more effective solutions for customers. Financial institutions such as Citicorp are rushing to offer value-added services, such as decision support systems, to achieve competitive advantages.

Citicorp recently completed a nine-month pursuit of Quotron and its market leading installed base of almost 80,000 installed stock quote terminals as part of a strategy to become a diversified provider of financial services and information.

"Citicorp's chairman, John Reed, has said all along that Quotron is a piece of the apparatus," says software and services analyst Tom Lawton, publisher of "The Computer Services Report" in Belmont, Mass.

Ownership by the world's largest bank holding company will provide Quotron with the resources to maintain its sizable market share. And Quotron sees growth beyond the stock quote data itself in channeling that information within user sites.

"We can move more heavily into the transportaton of information within brokerages and the banking community," says Milton Mohr, Quotron's chairman and chief executive officer.

Mohr says 55% of Quotron's $206 million in 1985 revenue came from those types of communications services. "That portion of our business will continue to go upward in the future," he projects.

ADP acquired Bunker Ramo from Allied Corp. primarily to bolster its

See **FINANCIAL** page 95

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BOSTON	Jul 8 Sep 16	Jul 9-11 Sep 17-19	Jul 14-16 Sep 22-24	Jul 17-18 Sep 25-26	Jul 21-25 Sep 29- Oct 3	Jul 28-29 Sep 6-7	Jul 30- Aug 1 Sep 8-10	Aug 4-7 Oct 13-16	Aug 12-14 Oct 21-23	Aug 18-19 Oct 27-28	Aug 20-22 Oct 29-31	Aug 25-29 Nov 3-7
CHICAGO	Jul 22 Sep 23	Jul 23-25 Sep 24-26	Jul 28-30 Sep 29- Oct 1	Jul 31- Aug 1 Oct 2-3	Aug 4-8 Oct 6-10	Aug 11-12 Oct 13-14	Aug 13-15 Oct 15-17	Aug 18-21 Oct 20-23	Aug 26-28 Oct 27-29	Sep 8-9 Nov 3-4	Sep 10-12 Nov 5-7	Sep 15-19 Nov 10-14
DALLAS & SAN FRANCISCO	Oct 21	Oct 22-24	Oct 27-29	Oct 30-31	Nov 3-7	Nov 10-11	Nov 12-14	Nov 17-20	Dec 2-4	Dec 8-9	Dec 10-12	Dec 15-19
LOS ANGELES	Jul 22	Jul 23-25	Jul 28-30	Jul 31- Aug 1	Aug 4-8	Aug 11-12	Aug 13-15	Aug 18-21	Aug 26-28	Sep 8-9	Sep 10-12	Sep 15-19
NEW YORK & SOMERSET	Aug 26	Aug 27-29	Sep 8-10	Sep 11-12	Sep 15-19	Sep 22-23	Sep 24-26	Sep 29- Oct 2	Oct 8-10	Oct 13-14	Oct 15-17	Dec 15-19
TORONTO & ORLANDO	Oct 21	Oct 22-24	Oct 27-29	Oct 30-31	Nov 3-7	Nov 10-11		Nov 17-20	Dec 2-4	Dec 8-9	Dec 10-12	Dec 15-19
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